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ILLUSTRATIONS.

Interior, San Lorenzo, Verona.....From a Photograph.

New Hôtel de Ville, Sens.....MM. Dupont and Poivert, Architects.
1. Exterior Elevation.
2. Details of Ceilings.

The White House, Helensburg .....Mr. M. H. Baillie Scott, Architect.
1. Garden Front.
2. Interior of Hall.

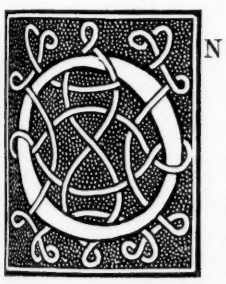
Illustrations in Text.

Plan of San Lorenzo, Verona ..... Page 382 | New Hôtel de Ville, Sens. Plan ..... Page 392

CONTENTS.

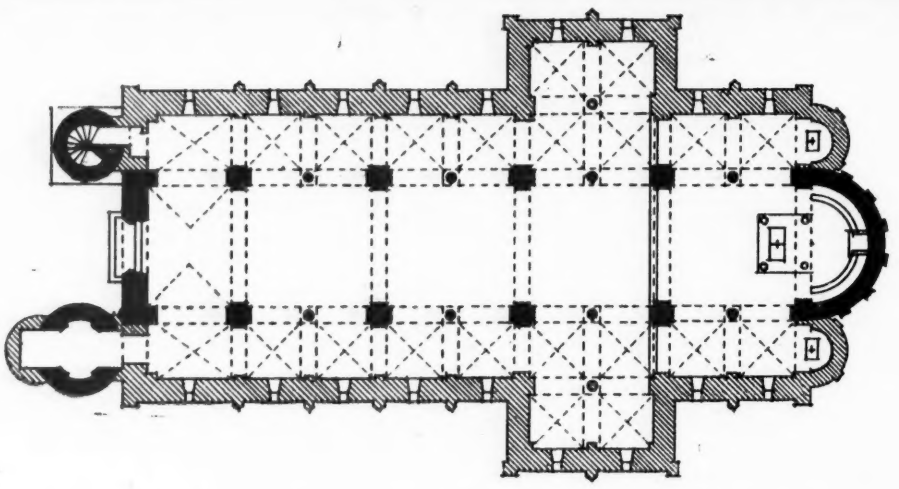
	PAGE
San Lorenzo, Verona	381
The Report on Workmen's Compensation	382
Notes	384
Brockley Branch Library Competition	386
Magazines and Reviews	386
Liverpool Architectural Society	388
The Printing-House, Cambridge University; and the "Pitt" Press Buildings, 1804-1904	389
Verification of Standard Measures	389
The Architectural Association Camera and Cycling Club	390
The London County Council	390
Applications under the London Building Act, 1894	391
Architectural Societies	391
Correspondence :—	
The Liability of Councils for Sanitary Inspectors' Errors	391
Technicians' English	391
Errors in Quantities	391
Competitions	391
Illustrations :—	
San Lorenzo, Verona	392
New Hôtel de Ville, Sens	392
The White House, Helensburg	392
Books Received	393
The Student's Column	393
Court of Common Council	394
Obituary	394
General Building News	395
Stained Glass and Decoration	397
Foreign	397
Miscellaneous	397
Legal :—	
What is a "Dangerous" Building?	398
Employers' Liability Act	398
Failure to Deposit Plan	398
Borough Council and Dwellings Company	398
Patents	399
Some Recent Sales	399
Meetings	400
Prices Current	400
Tenders	401

San Lorenzo, Verona.



N the north side of the Corso Cavour at Verona, between the street and the Adige, and facing the piazza of the ancient church SS. Apostoli, a glimpse may be had of a remarkable church, little known and seldom visited—S. Lorenzo. Baedeker dismisses it in a line; Hare fails to notice it at all; nor is it mentioned in De Dartein's monumental book on Lombardic architecture. Verona is full of ancient churches—from S. Stefano, parts of which go back to the IXth century, to the great church of S. Zeno, the Durham or Speyer of Italy, built probably in the middle of the XIIth century. Milan, Pavia, and Verona are the incunabula of Italian Romanesque. Among these Lombardic churches, S. Lorenzo presents many points of interest in plan, elevation, and detail. It consists of an aisled nave, transepts, or, rather, quasi-transepts, for the pier arcade runs uninterruptedly across the transepts as it did in Ernulph's choir at Canterbury, a choir with three parallel eastern apses, and an eastern apse to each transept. The façade has two round towers, as at Aix-la-Chapelle, and there is a square tower south of the church. The pier-arcade consists of four and a half coupled bays—one in the choir, one in the transept, two and a half in the nave. As at Durham, the westernmost bay is a half bay. The aisles are groined, and, as at Jumièges, are surmounted by a groined gallery, which returns round the transept ends, as in St. George's de Boscherville and Winchester Cathedral. This gallery was also originally carried round the west end of the nave, for the base of the midway column has been found; the western gallery has now been rebuilt, as shown in the photograph. The approximate dimensions of the church are:—Length, 110 ft.; transept, 72 ft.; breadth of nave, 21 ft., and of nave and aisles, 38 ft.; height, 42 ft.

The whole of the interior was masked by a veneer of Renaissance work; this was swept away at the restoration of 1889, and it has been attempted to restore the interior to the form which it presented at the period when it was built. But what that period was has yet to be determined. The authorities of the church, as is natural, carry back the date to very early days—even to the very beginnings of State Christianity, when Constantine, *c.* 330 A.D., is said to have handed over to the Christians of Verona a temple of Venus, on the site of the present church. Again, a church of S. Lorenzo is mentioned in the time of King Pepin (800-808), a son of Charlemagne, whose subterranean tomb and sarcophagus are still to be seen in the churchyard of the neighbouring church of S. Zeno; so that the present church may belong to the earliest years of the IXth century. If so, it will be older than anything at Pavia; older even than the apses of S. Ambrogio and S. Eustorgio at Milan. Again, in 1185, Pope Lucius III. granted to it certain privileges as to mass. As far as documentary evidence goes, therefore, the church may be IVth century, IXth century, or XIIth century. Nor is this all. The internal elevation of the choir differs from that of the nave—the latter is shown in the photograph from the south-east. In the choir the pier-arches are wider and semicircular, not stilted; and the gallery is very small and set very high, leaving a large space of blank wall between the pier-arcade and the gallery. Again, the south wall of the nave, half way up, is of alternate courses of stone, brick, and river-pebbles, some of the latter being set in herringbone fashion. The upper part of the wall is built of much larger stones or of brick, and is of much better masonry. It follows that the choir and apses may be earlier than the western part of the church and that the upper part of the nave may be later than the lower part, the galleries being a later addition, as they probably are in the basilicas of S. Lorenzo and S. Agnese, Rome. It is just possible that these earlier parts may be of the IXth century; the rest must be much later. Now turn to the plan. The triple eastern apse is found at Rome, at S. Pietro In Vinculis (VIIIth century), and S. Maria In Cosmedin and S. Maria In Domnica (IXth century), and in S. Ambrogio, Milan (824-859). Again, the return aisles of the transepts and the west end are decidedly a mark of late date; they occur in the middle of the XIth century in the Caen churches, but are very exceptional in the north of Italy. Outside are the foundations of an exo-narthex, which may have formed



Plan of San Lorenzo, Verona. (*From Hubsch's "Architecture Chrétienne."*)

part of an atrium. At S. Ambrogio, Milan, an atrium was added in the XIIth century. The pair of western towers, also, are found in S. Ambrogio; in the Verona church they are in a line with the aisles; in S. Ambrogio they are flanking towers.

As for the materials, the interior is built partly in brick, partly in alternate courses of brick and stone—a common fashion in Verona. As in S. Ambrogio, Milan, and S. Michele, Pavia, the aisles are in two stories, both covered with groined vaults, and, as in S. Ambrogio, there is no clearstory. The piers, too, are arranged in Lombard fashion. Was it with a view to covering the nave in great squares with an intersecting ribbed vault? That seems hardly probable; the slenderness of the supports seems against the possibility of a Lombard vault, which was usually very heavy, sometimes as much as 20 in. thick. Rather one would judge that the heavy vaulting shaft of each principal pier was intended to carry a broad transverse arch crossing the nave, with its spandrels filled up with walling carrying the purlins. Thus the wooden roof would be divided by four party-walls into five compartments, and a fire in any one compartment could not spread into the neighbouring compartment. A similar roof occurs in S. Miniato, Florence (XIth century), and in Modena Cathedral, and formerly in S. George's de Boscherville, Normandy, and in the aisles of St. Peter, Northampton.

As for the plan with alternating piers and coupled bays, this in itself forbids a IXth century date. This Lombard plan of church occurs indeed in S. Eustorgio, Milan, and in SS. Felix and Fortunatus, outside the walls of Vicenza, both Xth century churches; but in both the piers are less advanced in type than at S. Lorenzo. The columns are a curious melange of different marbles; some are monoliths, others are pieced together; capitals and bases, too, are a miscellaneous assortment, reminding one of the diversity of S. Maria in ara cœli, Rome, which may be *c.* 900. But an equally mixed set of capitals, shafts, and bases may be seen in the XIIth century crypt of S. Zeno, Verona. In both the Verona examples some of these capitals, bases, and shafts come, no doubt, from earlier churches on the same site. Others are of different origin, for some of the capitals are too small, others too large for their shafts. Some of the columns have the Attic base, some have none, some have large bases hacked down to fit. It will be noticed that, owing to the thickness of the wall and the slenderness of the columns and their capitals, both in the pier-arcade and in the upper aisle, the Byzantine dosseret or cymaise occurs instead of an abacus; this is common in Lombardic work. The principal piers have a cushion capital similar to those of S. Zeno, Verona, but less developed. Cushion capitals occur in S. Miniato, Florence, and S. Abbondio, Como, in the XIth century. All the capitals of S. Theodore, Pavia (1190), are of the cushion form. The pier-arches are more simple in type than those of S. Ambrogio, Milan, and S. Michele, Pavia, not being recessed in orders. On the other hand, the gallery-arches of the choir are in two orders, and the windows have square orders. Of the string beneath the gallery, many fragments were found at the restoration, one or two *in situ*. It is very classical in character, and seems too elaborate to have been executed before the XIIth century. Externally, there are brick buttresses—pointed oblongs on plan—which occur in other XIIth century churches—at Verona and Milan; where, also, a similar semicircular corbel-table is common, appearing first perhaps in the IXth century, in the choir of S. Ambrogio. The two western towers are very remarkable; both are circular, both contain newel staircases leading to the spacious galleries, which, as in the Byzantine churches, may have been appropriated to the female members of the congregation. Still more remarkable are the bases of the towers. One tower stands on a big quadrangular sculptured block, which may quite conceivably have been an altar belonging to the Temple of Venus, which the IVth century church superseded. The other stands on the base of some vast column, such a base as one sees still here and there, for the engaged columns of piers in the halls of the Roman thermæ.

And now to sum up. The church presents many features to be found in the very earliest Romanesque churches, and even in the early Christian basilicas of Rome and Ravenna, and the domical churches of the Eastern Roman Empire. On the other hand, there is not a single one of these features which cannot be paralleled in undoubted Romanesque work of the XIth or XIIth century. Further, there are other features which occur nowhere before the XIth or XIIth century. The conclusion seems irresistible—that we must dismiss as a figment any ascription of the church to the IVth century and come to the conclusion that, if any part of the work belongs to the IXth century, it can only be the eastern apses, the lower part of the walls and fragments of earlier work re-used. The church, as it appears now, cannot be earlier than the later years of the XIth or the early years of the XIIth century. Some help to its date may be got from the great church of S. Zeno. It resembles S. Zeno in many respects, but in a humbler and less ambitious fashion. Now, S. Zeno was built not earlier than 1138, which would give us for S. Lorenzo a date not earlier than the first quarter of the XIIth century. Its position relatively to S. Ambrogio, Milan, and S. Michele, Pavia, is still more uncertain; the early date assigned to these churches by De Dartein is quite impossible, nor has any other date been satisfactorily established. A probable sequence is:—(1) S. Ambrogio, Milan, except the apse and choir, which are IXth century; (2) S. Michele, Pavia; (3) S. Lorenzo, Verona; (4) S. Pietro in ciel d'oro, Pavia, consecrated in 1136; (5) S. Zeno, Verona, after 1138.

THE REPORT ON WORKMEN'S COMPENSATION.

IN our former issues we have referred to the general provisions of the Report of the Departmental Committee on Workmen's Compensation, and we purpose now to make one or two observations on the recommendations contained in the Report, although we do so in no cavilling spirit, since the Report has been framed not only with great attention to detail, but the suggested amendments have also been conceived in an impartial spirit, with reference to the various interests represented before the Committee.

In making these observations we propose not to follow the text of the Report, but to take the Act and, as far as possible, follow the order of its provisions.

As regards the word "accident," the Committee recommend that no attempt should be made to define it, but that the Courts must be left to determine whether an injury is or is not accidental; the Committee do, however, say that they are not prepared to advise an extension of the Act to include diseases incidental to a man's occupation. Although we agree with this view of the Committee, their recommendation appears hardly to go far enough to attain the end they favour. As the law now stands the anthrax cases, Turvey *v.* Brinton, and Higgins *v.* Campbell and Harrison, are binding on arbitrators, and they are compelled to find diseases incidental to occupation accidents within the Act. These cases are on appeal to the House of Lords, and if they are reversed there will be no difficulty in giving effect to the recommendation of the Committee; but should the House of Lords affirm these decisions, it is obvious that a change in the law would be necessary to carry out the views

expressed in the Report, and a definition would have to be given of the word "accident."

The Committee recommends (paragraph 111) that the limitation of locality involved in the words "on, in, or about," should be modified, and that the workman shall be entitled to the benefits of the Act, wherever the accident happens, whilst he is actually engaged on the duties of his employment; but this recommendation must be read with the important limitation contained in paragraph 153, that it is not to apply when an "undertaker" is liable to the workman of his sub-contractor, in which case the liability is still to be limited to an accident which happens, on, in, or about the undertaker's own works, or the place where he is exercising control in carrying out the work. As to the word "undertaker," which, when read in conjunction with the word "employer," as used in the Act, has caused some difficulty, especially with reference to indemnities under section 4, the recommendations of the Committee are not so clearly expressed, and it will be for Parliament to consider the form to be given to their recommendation. The intention is clear that wherever an employer has had to pay compensation to a sub-contractor's workman, there is to be an indemnity. It appears that the word "undertaker" might well be dispensed with throughout the Act in favour of the word "employer," although this would necessitate re-drafting the defining section, where undertakers are referred to with reference to the various employments within the Act.

Some of the definitions suggested in the Report would require careful consideration. Thus it is proposed to define "wharf" as "a place for landing or embarking goods or passengers contiguous to water." This definition seems to have been suggested to adopt the view expressed by the majority of the Court of Appeal in Haddock *v.* Humphrey, but would it include the decision in Ellis *v.* William Cory and Co.? The intention of the Committee appears to be to express the law as laid down in both these cases, but would discharging goods upon a floating structure in mid-river unconnected with the shore be deemed to be "landing" them? Moreover, the definition appears too wide, since it would include piers and jetties, and a pleasure steamer taking up passengers from a pier would be using a wharf. As regards warehouses the Committee propose sweeping away the distinction between wholesale and retail premises now laid down in the Courts (Green *v.* Britten and Gilson), limiting the employment to "storage for sale or safe custody by way of trade, or for purposes of gain."

A definition of "engineering work" is also suggested, extending the operations to road-making, well-sinking, construction and maintenance of telegraphs, telephones, "and other electric appliances," but the latter words appear far too vague, and would encourage much litigation.

The Committee have recommended an extension of the Act to quarries less than 20 ft. deep, but in this connexion a matter which causes much hardship in the case of mines and quarries seems not to have been brought to the attention of the Committee. The definition of undertakers in the case of such undertakings includes the "occupier," but, owing to a lack of definition of the word "occupier," the persons temporarily working quarries may escape liability, and the occupiers also may become liable to pay sub-contractor's workmen, and yet have no right of indemnity from the sub-contractor. We should suggest a simple remedy for this by defining the word "occupier" in this connexion as it is defined in the case of docks, wharves, quays, etc., including persons having the actual use and occupation of such premises. As regards building operations, the Committee have recommended the drastic course of abolishing all restrictions, and including all building operations. The restrictions in the present Act were inserted to exclude small builders, and the Committee, in relation to other occupations, seem fully alive to the objections of including small traders, unless and until a system of compulsory insurance can be enforced, and consequently we are drawn to the conclusion that, in the case of building operations, their only reason for including all building operations was the difficulty of suggesting satisfactory limitations, and the litigation that has attended those contained in the present Act. We venture to suggest that a limit, based on the cost of the work to be done, may possibly offer a satisfactory solution of this question, since a low limit on contract prices would exclude the use of real scaffolding or machinery. The suggestion that the word "dependants" should include brothers and sisters is a departure from the Fatal Accidents Act which does not meet with our approval, and which the Committee fails to support with any strong reasons. The burden placed on industries should, in our opinion, not be so increased.

The recommendations of the Committee as to the assessment of compensation in the case of labour casually employed do not seem to offer any satisfactory solution of a question which bears heavily on both employer and workman. The recommendation practically comes to this—that the standard prescribed by the Employers' Liability Act, 1880, may be applied, and the earnings be estimated by reference to the earnings of persons in the same grade of employment in the district—the principle adopted by the County Court Judge in Bartlett *v.* Tutton and Sons. This recommendation involves the proposition that the employer of a casual hand, be the employment only for an hour or two, must incur the liability of having to pay him compensation out of all proportion to his service, and practically on the same scale as the workman regularly employed, who is probably a higher class workman. Under the Employers' Liability Act the principle is reasonable, since negligence on the part of the employer or his servants is involved in the injury to the workman; but when accidents are unconnected with negligence, as under the Workmen's Compensation Act, this principle is inequitable. The question is an extremely difficult one, but we hoped that the Committee might have devised a more satisfactory solution, and a different scale have been applied in the case of really casual hands, a principle adopted by the Committee in reference to the aged and infirm. The recommendations of the Committee dealing with the election of remedies, taken in conjunction with the proposed limit to be placed on the redemption of weekly payments, will tend to do away with some cases of hardship. In the *Law Times*, March 7, 1903, an example was given of a case of considerable injustice to employers. In this case a man claimed under the Employers' Liability Act 250*l.*, and, having failed in his action, obtained an award under section 2 sub-section 4, and the employers who were compelled to defend themselves against the charges of negligence, and who had succeeded in their action, found themselves saddled with a liability to pay some 750*l.*, in place of the 250*l.* claimed in the action. We do not, however, agree with the suggestion made by the Committee that in actions at common law or under the Employers' Liability Act, a plea may be set up that the workman has an adequate remedy under the Workmen's Compensation Act; such a plea would raise questions of great difficulty and considerable uncertainty.

Before leaving the subject of compensation, we desire to draw attention to a point which seems not to have been brought prominently before the Committee. At a recent meeting of the Oddfellows, complaint was made of the pernicious influence the Workmen's Compensation Act was having upon the funds of benefit societies. These societies hesitate to pronounce a man fit for work as long as he is in receipt of compensation, yet since compensation is received without any of the restrictions attending sick pay, the men are not so anxious to return to work, and it is obviously not their interest to do so until they are at least so far recovered as to be able to earn wages considerably in excess of the half-pay they may be receiving as compensation. The restrictions placed upon a man in receipt of sick pay are a direct check on malingering. He is subject to surveillance, he may not be out after certain hours, or walk more than a certain distance from his home, and the consequence is that his *otium* is enjoyed with a certain loss of *dignitas*. Now, seeing that these benefit societies are famed for their excellent management, and that their rules are framed by the men for the men in their own interests, it would appear that the Legislature might well take a leaf out of the men's book, and that some system might be devised by which a man in receipt of compensation might be given a similar incentive to go back to work. As it is, the benefit societies and the Act often work to their mutual disadvantage. The two are independent, yet the benefit society often is guided by the payment of compensation as a test of capacity; whilst, on the other hand, when an arbitrator is trying to compel a man to return to some work by reducing compensation, his object is frustrated by the man's being in receipt of sick pay.

The Report contains some very

practical suggestions as to the time for commencement of proceedings, but since it states that the "notice of claim" shall not be a step in the action, and as "proceedings" cannot be taken without special leave after the expiration of three months, it will be well in the Act to define what step is to be deemed the commencement of proceedings, to avoid questions such as that raised in Parry *v.* Clements. The recommendations as to the functions of medical referees are very important, and tend to substitute a medical tribunal for the present quasi-judicial tribunal which, in many cases, would be more effective. In paragraph 231, however, a clerical error seems to have crept into the Report. Where a workman is in receipt of weekly payments, and a dispute as to his capacity is referred to the medical referee, the Report states that the opinion of the referee is to be conclusive of the condition of the workman "at the time of his injury." It is obvious that this reference might be made weeks or even years after the accident, and the question to be determined is the workman's condition at the time of the reference, and earlier in the paragraph this is so stated. Before the Report takes shape in legislation, these and other minor points will no doubt receive full consideration, but attention cannot be too soon drawn to any suggested amendments, if a satisfactory measure is to be obtained at the hands of the Legislature.

NOTES.

Coast Protection. As WE have before observed, a circumstance militating against the adoption of protective works in many parts of the Eastern and Southern coast-line is the small value of agricultural land. When the value of such property becomes increased by the extension of watering places, or by the development of new building estates, a solution for the problem is at once afforded. We believe that in numerous places the local authorities might do much for the protection of England from encroachment, by road construction parallel with but at a safe distance from the shore. At present it is by no means uncommon to find towns, villages, and hamlets on the coast entirely without direct means of inter-communication. An example of the kind is furnished by the towns of Worthing, Goring, Littlehampton, Bognor, and intermediate villages. Access between these places can only be obtained by circuitous inland routes, and we are certain that the construction of a continuous road along the coast would be of immense convenience, as well as serving to augment the value of land bordering the new highway. If the local authorities were to acquire the property on either side of the road at the present nominal value, the investment would be highly remunerative in the long run. The cost of the road and protective works would be repaid, further incursions of the sea would be prevented, and the popularity of the various places would be greatly increased. We have here considered merely a representative case, but very similar conditions obtain along many other parts of the coast-line.

Use and Abuse of the Roads. IN an article which recently appeared in the *Times* on the growth of electric tramways, it was stated that some of the municipalities were contemplating the inauguration of parcels and goods traffic, and that one municipality was even considering the question of carrying coal. This appears only to be rumour at present, but it draws attention to a matter which might become a most serious abuse. As it is, our roads, both in towns and suburbs, are being used for nearly every purpose except that for which they were created. They form a convenient trough in which to lay all pipes and wires, and are generally kept open for this purpose. Tramways rush at high speeds down the portion of the highway which is not opened up, and motor-cars and cycles dash at higher speeds past the tramways. The normal vehicular traffic, and the pedestrians, are already much in the position of those who engage in an obstacle race. If goods and coal traffic is to be added to the use and abuse of the roads, a serious condition of things will be created, and it is, therefore, of importance that Parliament should see that Tramway Bills contain clauses restricting the municipalities from engaging in goods traffic. When the increase is considered in the number of tramway passengers, they having only amounted to 759,466,000 in 1896, whereas last year the number carried was 1,681,949,000, some idea can be obtained of what parcels and goods traffic on the roads might grow to.

Lightning Arresters. THE extensive use of electricity in America to transmit power over long distances by overhead wires supported on wooden poles or iron standards has brought into prominence the importance of studying the effects of the electricity in the atmosphere. One of the greatest difficulties which the pioneers of this method of transmitting power had to overcome was the constantly recurring breakdown of the system due to short circuits caused by miniature lightning flashes from the wires to the nearest conductor in contact with the earth. It is now about forty years ago since Lord Kelvin showed, by means of his water-dropping electrometer, how rapidly the electric pressure in the air varied with the height above the surface of the ground even on days when the sky is clear. This rapid and erratic variation of pressure with height makes the working of transmission lines, especially those which vary greatly in altitude during their course, very difficult. Even when the line is not working the electrical surges set up in the wires by the atmospheric electricity have sometimes been great enough to do serious personal injury to the officials and to pierce the insulation of the generators and transformers on the line. To get over this difficulty "lightning arresters" are always used. In a recent paper in the *Electrical Review* of New York Mr. A. D. Adams gives a most interesting discussion of the theoretical principles on which these appliances are supposed to act. The form of arrester which has come into general use with transmission lines in America consists of a porcelain slab with a row of small brass cylinders placed parallel to one another on it at distances of about $\frac{1}{16}$ in. apart. The top cylinder is connected with the transmission wire, and the bottom cylinder is connected with an earth plate exactly similar to those used with lightning conductors. When an electric wave generated by atmospheric electricity comes along the wire it goes to earth by sparking over the brass cylinders, which are sufficiently numerous and at sufficient distances apart to prevent the working pressure of the line from establishing an arc. Mr. Adams states that it is quite an ordinary sight to see the "lightning arresters" at a station connected with a long transmission line flash "scores of times" during a thunderstorm, often with loud reports, and for the flashing to be continuous for several minutes at a time. The very elaborate arrangements of these safety devices that are put up in connexion with all transmission lines show that electricians are now fully alive to the dangers of the surges due to atmospheric electricity.

Paints for Structural Work. SOME interesting results of an investigation into the durability of paints for the protection of structural ironwork will be found in a paper recently read before the Franklin Institute by Mr. Robert Job, chemist to the Philadelphia and Reading Railroad. Three types of paint had been used for several years on this line, and, after various trials, it was found that ironwork covered with one variety remained in perfect condition after some four years' service, while parts of the same structures coated with another quality of paint became very badly corroded. These general results suggested an investigation to determine the causes of the variations and to assist in the establishment of a specification for paint of satisfactory durability. Chemical analysis threw very little light on the subject, and resort was had to microscopic examination. Marked differences were then observed in the sizes of the particles of pigment in the three qualities of paint. Full particulars of the investigation are given in the *Journal* of the Franklin Institute, to which our readers are referred; but we may state that the point made by the author of the paper is that fineness of the pigment is a very important element in the durability of the paint. Naturally, the finer the pigment, the slower will be the drying process, and there is a degree of fineness beyond which drying would be inconveniently slow. At present, as ordinary inorganic pigments are ground, the fineness is so far below the point in question that considerable improvement may be made without causing any risk of slow drying.

Indiarubber Paving. OWING to its high cost, the use of indiarubber as a paving material can never become general; but in limited areas, where the prevention of noise is all-important, it has been employed with considerable satisfaction and ultimate economy. Perhaps the most familiar example of such paving is that on the carriage-ways passing beneath the Euston

Hotel. Laid nearly a quarter of a century ago, at a cost of about 5*l.* 8s. 6d. per sq. yd., the rubber covering lasted until May, 1902, when the original thickness of 2 in. had been reduced in the middle of the roadway to about 1 in., and to $\frac{5}{8}$ in. at the places where horses first step upon it from the macadam road. In consequence of the increased price of indiarubber the cost of covering the carriage-ways with the same quality of material as before was estimated at 10*l.* 2s. 6d. per sq. yd., and a cheaper quality was substituted at very little more than the original price. The material adopted is vulcanised rubber similar to that laid down in 1895 at Wellington Court, Knightsbridge, where it has worn well. In the courtyard of the Savoy Hotel the rubber paving, 2 in. thick, was laid at a cost of about 8*l.* 8s. per sq. yd. In all the above cases the amounts mentioned are exclusive of concrete foundation work. During the life of the paving at Euston the average cost of maintenance has been less than 3½d. per sq. yd. per annum. From these notes it becomes clear that indiarubber paving is by no means an extravagant luxury.

Theatre Regulations at Liverpool.

LIVERPOOL has wisely taken up the question of theatre safety with due regard to modern requirements and the lessons learnt from the Chicago fire some nine months back. It would be well if all the other larger provincial cities were to adopt rules of similar tenor. Birmingham and Manchester, we believe, have recently revised their regulations, those of Birmingham being essentially of a modern character. But where revised rules are really more required than in the large provincial centres is in the medium-sized provincial towns that perhaps have one or two theatres at the most, and perhaps an additional variety theatre. It is in towns of medium size that there is so much neglect at the present moment. We may take the opportunity of observing, however, that there ought to be some "model" regulations for adoption in all centres, so that the theatre manager, and more particularly the touring manager, does not find himself met with a curious variety of requirements in the various places in which he wishes to do business. As it is, one provincial centre requires sprinklers; another does not require sprinklers, but will not allow any scenery into the theatre that is not "flame-proof." One centre requires a certain class of electrical safeguards; another requires a different variety. Surely the time has arrived to standardise the requirements as to theatres, and there should be no great difficulty in doing this if the theatres be classified according to their size and their position in relation to public thoroughfares. Of course it is well known that the regulations of the London County Council frequently serve as a model in the provinces, but these regulations are not necessarily applicable everywhere to provincial requirements; in fact, very much the reverse, as the disadvantages as to site in many provincial theatres require special treatment, if even an ordinary amount of safety is to be attained.

Architects and Elementary Schools.

AN important discussion took place last week at the meeting of the Education Committee of the Herts County Council as to the employment of an architect to prepare plans for and carry out the erection of a new "provided" school at Watford. It appears from the report in the *Watford Observer* that one party proposed that the work should be done by an architect, another that it should be done by the County Surveyor. Fortunately it was decided that an architect should be employed; but it was decided, as regards the erection of a "provided" school at Bushey, adjoining Watford, that the County Surveyor should do the work. The business of the county surveyor is mainly concerned with main roads, and this work alone, if it is to be done properly, is quite enough for one official. But for the satisfactory erection of a school an architect should be employed, one who has studied the subject, and not a surveyor who is an engineer by profession, and who is an amateur as an architect. The question is one of more than local importance, and we think the Institute should consider the matter, because the proper course for a county council is to appoint an architect to do their architectural work, either permanently or for each building as required.

A Cape Building Case.

WE have received a report, published in the *Cape Times*, of September 6, of a case of Skippon *v.* De Witt, which contains the judgment of Chief Justice Sir J. H. de Villiers, in the First Division of the Supreme Court. It is interesting as showing how the same questions of building law are cropping up the world over. The action was brought by a builder against an architect to recover damages for incorrect quantities supplied by the defendant, who had acted both as architect and quantity surveyor for the building owner. This question has more than once come before the English Court, as many of our readers are aware, and it has been decided over and over again that when there has been no fraud on the part of the quantity surveyor, the builder cannot recover if the quantities are incorrect. This was also the judgment of Chief Justice de Villiers, who appears, however, not to have relied on any of the English decisions, but rather to have treated the case as a novel one. Possibly it may be so in the Cape Court, and, therefore, it may be regarded as a decision of some importance for practitioners in South Africa.

Croyland Abbey.

FOR the past seventeen years, through the energy of the Rector, what remains of the grand Abbey Church of Croyland, in the Lincolnshire Fens, has been gradually repaired, the work having been carried out by Messrs. John Thompson and Co., of Peterborough. The lead roof covering the north aisle of the nave—now used as a parish church—was pronounced by the late Mr. Pearson to be in a very bad state, its thrust also endangering the side walls. This it is estimated will require a sum of 537*l.* to properly repair, and an additional sum of 240*l.* is wanted for two new windows on the south side. For these sums, of which the first is the more important, an urgent appeal is now made, and considering the great interest of the building as a national monument, and the care which has been taken to preserve it to us in recent years, it is earnestly to be hoped that the required sum may be forthcoming. The sum is a comparatively small one, and should be easily raised if the needs of the building are made widely known. All sums should be sent to Rev. T. H. de Bœuf, the Rector of Croyland.

The Belle Vue, at Brussels.

THE Hotel Belle Vue, which stands at the north-east corner of the Place Royal at Brussels, has been purchased by the State, so that the house and garden may be added to the grounds of the Palace which adjoins it, in accordance with the plan for the enlargement of the royal dwelling and grounds. The demolition of the building will take something away from the symmetry of the Place Royal, since the Belle Vue is a kind of wing corresponding with a similar building on the north-west side. With the Belle Vue will also disappear what may be considered a historical hotel, for in 1776 Maria Theresa, Empress of Austria, granted to Philip de Profit the portion of the grounds of the ancient ducal palace, on condition that he should build on it in prescribed style a large hotel for travellers. In 1779 Charles de Loraine granted a piece of ground adjoining the hotel for the purpose of a terrace. So that the Belle Vue has been an hotel for more than a century, and during its existence has been the resting-place for all sorts of travellers, royal and otherwise. With it will disappear one of the most agreeable kind of old-fashioned hotels—spacious, quiet, comfortable—containing the comfort of the modern caravanserai, without its size, noise, and railway-station atmosphere.

Rushton Hall, Northants.

WE read that an American gentleman has purchased Rushton Hall, near Kettering, of late years the property of Mr. W. C. Clarke-Thornhill. Rushton Hall, one of our finest examples of domestic architecture, was originally built in the XVth century by an ancestor of the great building squire, Sir Thomas Tresham; to that period belong the great hall with its circular bay, and portions of the lower two stories. In 1594-5 Sir Thomas Tresham enlarged the house, and inserted his device of the trefoil, the "*foliis languentibus herba*" of his kinsman's epitaph, with the figures "1595" in the straight gables. The dates "1610," "1618," and "1626" in other gables of somewhat similar detail commemorate the completion of the house, and after the then prevalent style, by the Cockaynes, of whom Sir William Cockayne, Knight, elected Lord Mayor in 1619, had bought the property, about 360 acres in extent, after its confiscation in 1605 from Sir Thomas Tresham's son, Francis, for his complicity in the "Gunpowder Plot." The Cockaynes possessed the estate until the close of the XVIIIth century, when it passed to Sir William's descendant, Lord Cullen. An illustration in our columns of November 3, 1888, shows the main elevation of Rushton Hall,

with the galleried screen which connects the two wings and so encloses the quadrangle. Rushton had belonged to the elder branch of the Treshams in the time of King Henry VI.; after the decapitation of Sir Thomas Tresham after the battle of Tewkesbury, it was seized by the Crown, but was restored by King Henry VII. to John Tresham. In a distant corner of the park, at the end of a long avenue of box and yew trees, whence the "straining eye" may see the Field of Naseby, is the singular building known as the Triangular Lodge, erected by Sir Thomas Tresham in 1593-5, and illustrated in the *Builder* of July 21, 1883, after measured drawings by Mr. J. Alfred Gotch. There is a tradition that Dryden wrote parts of "The Hind and the Panther" at Rushton.

The Castle, Newcastle-under-Lyme.

DURING recent excavations have been found some remains of the foundations of the Castle, whereof it was believed all vestiges had been quite destroyed. The remains consist of about 12 ft. of walling, having a return of the same length, built with off-sets, and constructed of the local red sand-stone. The Castle, first erected in the last decade of the XIth century, was exchanged by King Stephen to Ranulph de Gernons, Earl of Chester, for the old Castle, commonly known as John o' Gaunt's, at Chesterton, about two miles distant. The fabric was repaired and enlarged *temp.* John, who in 1206 visited the fortress, which on the Borough seal appears as a many-gabled building, largely constructed of timber. Leland mentions the survival of one great tower in 1530. The Castle was pulled down after the Civil War; of late years a part of the site, known as Castle-hill, has been occupied by some foundry works.

Illustrations of the Channel Islands.

AT the Fine Art Society there is on view a collection of water-colour drawings by Mr. Wimbush illustrating the Channel Islands. Without perhaps rising to what may be called the poetry of water-colour art, these are very charming drawings illustrating many beautiful and picturesque scenes, and the artist treats all classes of subjects with success—old streets, views of hill and bay, and garden scenes with masses of flowers in the foreground; the exception perhaps is in the one or two which are purely sea-pieces—rough weather pictures, not very powerful as sea-painting. Many of the quieter scenes, in which the blue Channel sea forms a framework to lovely coast nooks surrounded by hills, are most attractive, and the view of "The Town Church, St. Peter Port, Guernsey" (36) shows how well Mr. Wimbush can paint architecture. The assemblage of greenhouses which make Guernsey a kind of conservatory have been judiciously ignored. One result of the exhibition may be to lead some more holiday-makers to turn their thoughts towards the Channel Islands, here portrayed in so attractive a form.

REOPENING OF ST. CHAD'S CATHEDRAL, BIRMINGHAM.—St. Chad's Cathedral has been closed for a few weeks while the interior has been renovated. The builders' work has been done by Messrs. J. Barnsley and Son, of Birmingham, under the direction of Mr. Keogh, architect, of London.

BROCKLEY BRANCH LIBRARY COMPETITION.

THE drawings comprising the designs, thirteen in number, submitted in limited competition for the proposed library to be erected upon a site adjoining Crofton Park station, have been exhibited to the public at Catford Town Hall during the present week. The competition has been instituted by the Public Libraries Committee for the Borough of Lewisham, and although the Committee is intrusted with the expenditure of public funds, it does not appear to have considered itself under any obligation to secure technical advice in the matter; the Committee has organised the conduct of the competition, and has adjudicated upon the designs submitted. No premiums were offered, and the statement of the Committee's requirements, which, together with a plan of the site, were supplied to invited competitors, are so brief that they may be here quoted in full:—

"The Committee invite designs for the erection of a new branch lending library, including reading and news rooms, also separate reading-room for juvenile readers (but without a reference library), also with caretaker's rooms, on an acquired site at Brockley (see ground plan inclosed). The buildings to be planned with a view to the best utilisation of the site and possible future extra accommodation; the cost, including fixtures, fittings, architect's and quantity surveyor's fees, is not to exceed 4,500*l*."

The site does not lend itself readily to successful planning. It is a right-angle corner site with a building frontage of about 30 ft. only, on Brockley main road, and of about 104 ft. on Darfield-road, which we understand to be an unimportant bye street. At that end of Darfield-road frontage which is remote from Brockley-road, the site is some 82 ft. deep, so that the building lines show a triangle with a truncated apex on the chief roadway. The competitors have had to decide whether they should contrive their main entrance in the 30 ft. frontage upon the important Brockley-road, or consider this sentiment immaterial when opposed to the greater economy and convenience of plan afforded by arranging the main entrance opposite the heart of the site in Darfield-street. On this point competitors have proved themselves divided in opinion, and it may further be said that the limit of cost mentioned in the "Memoranda of Instructions" has been to a very large extent ignored by them. Very few indeed of the designs could be carried out for a sum approximating to the limit fixed by the Committee.

The design which has been numbered 9—the work of Mr. Albert L. Guy, of Gray's Inn—has been selected by the Committee, and we understand that the appointment of Mr. Guy as architect has been confirmed by the Council. We are inclined to think, on considering the drawings submitted by Mr. Guy, that the Committee have been guided in their choice by the fact that Mr. Guy's design is the least objectionable of those few designs in which are found combined a main entrance into Brockley-road and a character and dimensions which hold out some hope that the work may be executed at the stipulated price. These advantages Mr. Guy's design offers; but we find it hard to congratulate the Committee on the result of the competition. The selected design entirely lacks character and style in its architecture, and shows few conveniences in plan. A lobby immediately inside the entrance gives direct access to a wide corridor in continuation of it, which affords access to reading and magazine rooms on the left, and forms a space for borrowers using the lending library, whose counter limits this space, upon the right. This counter is 36 ft. long, and the lending library is 16 ft. 9 in. wide. The reading-room for juveniles is at the end of this space, opposite the entrance lobby, and has a separate entrance from Darfield-street. All reading-rooms are well placed for thorough supervision from the lending counter, but there is no librarian's room or office, work-room, binding, or other room or store on the ground floor. A staircase opening into the staff entrance lobby leads to an ill-lighted basement apartment allocated to "staff," with lavatory accommodation convenient thereto. The requirements of the elevations, rather than the needs of the caretaker, surely have endowed that official with a suit occupying an upper floor placed over the salient portions of the building, consisting in scullery, kitchen, offices, living-room, and two bedrooms. The style of the building shows Elizabethan proclivities, with a Dutch gable, and is rendered in red brick and in what would suggest itself to be Bath stone, but which we understand to be intended as Portland stone. The design lacks distinction or scholarship. The requirements as to future extension seem to have been disregarded.

We will do no more than refer to the design numbered 8, which shows a scholarly elevation in Portland stone of a two-storied building—an impracticable quality in a library of this size and character; or to the design numbered 5, also in Portland stone, an elaborate design of merit, which soars beyond prosaic matters of cost (though not disdaining to justify a conspicuous but really well-devised tower, by a gas meter and the caretaker's stairs); or to the drawings numbered 3, wherein are shown forcibly delineated elevations, simple and monumental, in brick with economical Portland stone dressings, but with plans which are fatuous and impossible.

The designs in which competitors have arranged their main entrance in Darfield-street are for the most part too elaborate and costly, and of dimensions which place them outside consideration, but we think it would have been well if the committee had disabused its mind of an obvious prejudice against the entrance from Darfield-street. When all is said, the 30-ft. frontage of a building will not predominate its 100-ft. frontage because its entrance is placed there. It is also obvious that the absence of the entrance on the Brockley-road frontage gives just that importance to the Darfield frontage which may detach the building from its homely surroundings. If the committee had seen the matter from this point of view, they might have fixed their choice on the design numbered eleven, and thereby have obtained an economical building with an eminently convenient and not elaborated plan, and an elevation which would have a sufficiently monumental character, without any suggestion of extravagance. The author of this design has placed his entrance in Darfield-street, somewhat remote from Brockley-road. A compact lobby gives entrance on the right hand to news and reading-room and on the left to the junior readers'-room, and leads direct into the space allotted to borrowers. The counter and the lending library are on the right hand, and upon the left hand is space designed to be occupied by a future reference library or other extension of the buildings. There is a small librarian's office convenient to the counter, a work-room and lavatory accessible from the lending library. A separate entrance and apartments for the caretaker are arranged on the first floor, affording a gable over the entrance bay. The roofs are finished by eaves, a reasonable economy ignored by all, or almost all, other competitors.

We are afraid the committee has missed a chance of securing for Brockley a well-designed, economical, and convenient library, and will be accountable for the erection of a building which lacks character and practical conveniences of plan.

MAGAZINES AND REVIEWS.

THE *Art Journal* devotes some space to illustrations of electric light standards and fittings by different firms, under the general title "Electric Light and the metal crafts"; the writing, however, is little more than an appendage to the illustrations. Some of the designs are good; but there is nothing of first-class inventive artistic character about them, and this is hardly surprising when we consider that they are only the productions of firms, and that no artist's name is given in connexion with any one of them. The most distinctly characteristic things are the wood fittings sold by Mr. Henry, some of which we have already noticed with approval. "Northumberland and some Artists"; "The National Gallery of Scotland" (especially in regard to its French paintings); and "George Morland," are the subjects of three other articles. The close connexion between France and Scotland in XVIth and XVIIth centuries would have led one to expect an even larger representation of French art of that period, in Scotland, than actually exists; but the Scottish gallery includes some very fine and celebrated works of Watteau, notably his "Fête Champêtre," with its curious and dramatic contrast between the stiffly clad and brocaded living persons and the nude stone nymph on the terrace wall. Was this intentional satire on Watteau's part, or was his nymph merely decorative? We do not know whether Mr. Cundall, who writes the article on Morland, does not give a rather

exaggerated estimate of his genius—that is, of what might have been possible to him had he avoided dissipation and low company. The fact that he had those preferences seems rather an indication that his genius was not of the highest, or it would have held him above that kind of life.

The *Burlington Magazine* includes an article by Mr. Binyon on "Drawings of the Norwich School at the British Museum," with illustrations of two fine and interesting drawings by Cotman and Crome respectively. Mr. Clouston's "Minor English Furniture Makers" (III.) deals with the work of Ince and Mayhew, who, judging from the illustrations given, may be said to have represented the faults of Chippendale (which were very serious ones) without his merits. The style of these is about as bad as can be, and it is time that the fashion of admiring this kind of work was given up. "C. J. H." writes an article on the Ionides Collection, an article containing some good critical suggestions. While we agree with him that Rousseau is very unequal, we should suggest that the same might be said of Diaz, instead of merely dismissing him as an over-rated painter. Diaz at his best is so remarkable a landscape-painter, with a style so intellectual and so especially his own, that it is difficult to over-rate him; but it is not very often that you find him at his best. What the writer means by calling that *farceur* Monticelli a follower of Diaz, and suggesting that Diaz will ultimately be placed below him, we cannot imagine, except that art-critics seem in the present day to be entirely going off their heads in the perversity of seeing beauty in what is crude and ugly. An article on the lace collection of Mr. Blackborne is accompanied by illustrations of some most curious figured lace (Venetian point) illustrating the Story of Judith, and also the utter unsuitability of figures to lace-work; and illustrations also of some perfectly exquisite bits of purely decorative work in the same class of lace.

The most interesting illustrations in the *Berliner Architekturwelt* are those of the restoration, by Professor Otzen, of the ancient brick monastery chapel of Heiligengrabe; a fine piece of work with a lofty stepped gable at each end, and a heavy brick vaulted interior in the lower portion, which has been repaired, repointed, and decorated. Among the modern buildings illustrated, a very pleasing one is the school and master's house in the Christianstrasse, Berlin, by Herr Hoffmann. Here at least there are none of those architectural antics which so often disfigure modern German buildings; it is a lofty ⌐-shaped façade, perfectly plain except in the three gables which crown the centre and wings, where a specially enriched treatment contrasts effectively with the expanse of plain wall below. Two illustrations of sculpture from the Berlin art-exhibition of this year are very good; a bull in bas-relief by Herr Splieth, and a "Kugelspieler," a nude youth balancing a ball on his arm; both these have a classic purity and dignity of line which is essentially sculpturesque. There is some really good furniture from the St. Louis Exhibition, designed by a Berlin architect, Herr Nachtlicht, and something new and effective in the way of a fence and railing in front of a street house, designed by MM. Berndt and Lange. Those who are concerned in providing decorative house-railings should look at this; it contains a good deal of suggestion.

In *Technics*, Mr. H. F. Parshall and Mr. H. M. Hobart commence a serial article upon "The Mechanics of Heavy Electric Traction," dealing chiefly with train resistances at various uniform speeds. Several diagrams are given containing curves based upon results afforded by the high-speed line at Zossen, the Central London Railway, the City and South London Railway, the New York Central and Hudson River Railway, and other lines. These diagrams show that there is now a fairly general agreement among engineers as to the total tractive resistance on well-built modern railways and under normal conditions. This series will be followed with interest, in view of the rapidly increasing employment of electric traction. A short contribution by Mr. Percy Longmuir deals with the "Influence of Casting Temperature on the Properties of Metals," and may be regarded as the continuation of a paper read by the writer in 1903 before the Iron and Steel Institute. Since that year the investigations have been continued to the examination of various commercially pure metals, and the results now stated represent matter that has not been published heretofore. The value of the present records is indicated by the fact that, in the case of a fragile metal like zinc, a fall in casting temperature of only 37 deg. C. was accompanied by a decrease in maximum stress equivalent to 986 lb. per square inch. Variations in the case of aluminium appear to be chiefly shown on the extensibility of the metal, while the highest maximum stress in copper is coincident with the lowest casting temperature adopted by the writer. "Dampness in Houses" is the title of an illustrated article by Mr. Rufus E. Marsden, who presents a series of notes on the prevention and cure of dampness. The suggestions made are familiar to all practising architects, but should be of service to students. Mr. E. Fiander Etchells continues his series on the "Theory of Structural Design," devoting attention to "Pillar Formulæ." The object of the chapter is to compare Gordon's formula with a rule given in a previous instalment, and to elucidate the application of Mr. Shaler-Smith's sliding factor of safety formula to Gordon's rule. This is essentially a chapter that must be read in conjunction with those preceding and, probably, succeeding it. There are several other articles of considerable interest in the same issue, especially "Electric Lamps," by Mr. James Swinburne, wherein the Nernst lamp is fully described; "The Chemical Analysis of High Speed Steels and Alloys," by Mr. Fred Ibbotson, a subject of much importance to mechanical engineers; "Electric Waves," being Part III. of a series, by Professor J. A. Fleming; and "Starting Resistances for Shunt Motors," by Mr. George W. Howe, a short contribution giving rules for the design of such apparatus.

Public Works contains an admirable article on "The Public Baths of Ancient Rome," by Mr. Thos. Ashby, jun., of the newly-established British school at Rome, who has been several times a contributor to our own columns on subjects of Roman archæology. The electrification of steam railways is the subject of a long article by Mr. F F. Bennett, containing a large number of statistics as to comparative cost of steam and electric working, and other questions incident to the subject. Mr. Bennett thinks that an accelerated and more frequent service could be obtained on the electrical system, which would result in a much higher per-centage of passenger load in relation to the means employed to convey them. It does seem, as he says, rather absurd to employ a conveyance of 200 tons weight to convey 2½ tons of people about, and that is what he maintains that the present train system, on the average, amounts to. But we do not see that electrically worked railways could do so much to modify this condition of things. The composition of trains should be a little more elastic. Except on long distance journeys, there are certain times of the day when trains are always full, and others when they are generally nearly empty. It may be, however, that the extra work and time entailed in altering the composition of trains would more than compensate for the saving in haulage. Towards the close of the article the author threatens us with the bogey of State ownership of railways, which is every now and then put forth by railway economy theorists; and against which we protest. The public would not be nearly so well served by the State as it is by most (though certainly not all) of the great railway companies. Mr. A. T. Walmisley, the engineer to the Dover Harbour Works, contributes a long and amply illustrated article on the subject of groynes for the preservation and regulation of sea-beaches, which is attracting so much attention at present.

In the *Independent Review* Mr. T. C. Horsfall writes a very good article under the title "Housing: Lessons from Germany." The Lesson from Germany is put definitely in the form of the plan for suburban improvements of the town of Kastel, in which the plan is coloured to show "existing buildings," "buildings to be removed," "close building," and "open building." The point is that in Germany the town authorities put forth a carefully considered plan, on a comprehensive scheme, for the improvement of a town, and that such a plan includes the reservation of certain streets and areas from close building in long rows of houses. Commenting on their example, Mr. Horsfall says:—

"It will not suffice to ensure that in new districts the dwellings shall be free from structural defects and faults, shall be adequately lighted, ventilated, and supplied with wholesome water and with sanitary arrangements. Far more than this must be done. The new districts must be so wholesome and pleasant, that few or none of their inhabitants shall be tempted to get drunk, for the purpose of escaping as quickly as possible from the influence of their environment. The building of long unbroken terraces of small houses must be stopped. All dwellings must have within easy reach a broad, tree-planted street, and a pleasant open space, where parents and children may get air and exercise, and feel glad that they are alive. One of the problems which must be solved, if the new parts of towns are to be made and kept wholesome, is that of ensuring that the dwellings of people of different social classes shall be intermixed. The experience of all large English manufacturing towns shows that a high degree of civilisation cannot exist in a large district which contains only the dwellings of working people. In such districts, grave evils are caused by the lack of knowledge on the part of each family of kinds of life fuller than that which it lives. And, as where each house is small, the streets are necessarily narrow, and little or no planted open space can be supplied, ignorance of nature as well as of full human life necessarily prevails."

Further on, in reference to the same point, after speaking of the necessity for having comprehensive "extension plans" of towns, Mr. Horsfall says:—

"I know that at present in Manchester, and doubtless the same kind of feeling is found in other towns, a considerable number of persons who desire to take part in the work of providing wholesome dwellings, are prevented from building by the conviction that, if they provided a number of well-built, well-arranged dwellings, these could not long be wholesome and pleasant homes, because before long they would be ruined by the miserable surroundings and the foul air which our municipal authorities at present allow to invade all new districts. If professional builders and well-to-do persons of public spirit did not provide a sufficient supply of dwellings, it would be easy for the central and the municipal authorities, by encouraging the formation of such building societies of public utility as are now doing much good work in Germany, and by enabling them to obtain loans at low rates of interest, to give a great stimulus to the supply. And in the new, well-arranged districts Town Councils could safely build a large number of dwellings."

In the *Nineteenth Century* Mr. Wilfrid Blunt writes an amusing and sarcastic article on "By-law Tyranny and Rural Depopulation," based on his own experiences as a landlord. Whether he is right in considering that the want of adequate habitations has had an influence on depopulation is a very large question. What is of more direct interest is that he found that he could build healthy and comfortable cottages of iron at 130*l.* each, and has had to relinquish it at the bidding of the District Council. One may shudder (æsthetically) at the idea of iron cottages in a country district; Mr. Blunt says he had them painted green and that in general treatment they were not ugly; "the cottage occupants were delighted with their new dwellings, and all the neighbours envied them their luck." Mr. Blunt was vaguely cautioned by the authorities, who, however, said "there appears to be no objection to your proposals."

"Yet this is what has happened. During my absence last Christmas in Egypt, my builder, having nearly completed his task, was summoned at the Council's instance and fined 5*l.* at East Grinstead for the offence of building otherwise than with bricks and mortar, and on my return a further action was brought against me on the same charge, which resulted in a continuing penalty of two shillings a day being imposed on me so as to oblige me to pull the building down. The grotesque result was therefore reached that on the strength of a Public Health Act, designed to secure the better housing of the poor, a building against which no charge that it was insanitary could be brought—indeed the charge had been expressly repudiated—was condemned, not because it was not good enough, but merely because it was too good. The sole evidence brought by the prosecution was that of the district surveyor, who deposed that he had measured the building and found it was larger in area and contained more cubic feet of air—that is to say, that it was a better and, according to all modern sanitary views, a healthier building—than the Council's curious by-laws allowed to a single-storied cottage not of brick or stone."

Mr. Wilfrid Blunt's cheap cottage experiences come up again in an article in *The World's Work*, which seems to have been suggested by this special case. A photograph is given of the half-demolished cottage, and a rough plan and section of it as intended. The plan certainly betrays the amateur architect, for the rooms are simply placed in a row, and one bedroom can only be reached through an outside door or through the other bedroom. We fear the plan leads us to think that there may have been more justification for the official condemnation than Mr. Blunt quite recognises; but this does not affect the main argument. There is very little doubt that the application of cut-and-dried building by-laws in country places will have to be reconsidered before long; too strong a case has been made out against them. What is wanted, however, is not the abrogation of any by-laws, which would be a dangerous experiment, but a greater elasticity given to their requirements, and a power to the surveyor of exercising special judgment in special cases. The same number contains an article on the Jungfrau electric railway, with illustrations.

In the *Century* Miss Edith Wharton concludes her series of articles on Italian villas by one on "Venetian and Genoese Villas," with pictures by Mr. Maxfield Parrish, along with other illustrations. The illustrations, with their combination of water, balustraded terraces, heavy masses of trees, and dignified bits of half-crumbled Renaissance alcoves, are most fascinating. The same number contains an article by Mrs. Pennell on Mont St. Michel (under the title "In the Peril of the Sea"), with black and white illustrations by Mr. Pennell which are of the first order—masterpieces of pen line drawing.

Scribner publishes an interesting article on the foundation and development of the Royal Academy, from the competent pen of its Secretary. Under "The Field of Art" Mr. Frank Fowler contributes a short article on G. F. Watts which is one of the best we have seen on the subject; a sympathetic criticism, and not a mere piece of idol worship.

Harper publishes what is called "a critical comment on 'Othello,'" but as it is by Mr. Swinburne, the reader is not surprised to find that there is more of enthusiasm than of criticism in the usual sense of the word, though there are some fine suggestions in regard to Shakspeare's treatment of the original legend, and his probable or possible reasons for altering it. However, our special concern with the article is that it is accompanied by illustrations by Mr. Abbey. As in some other instances, we do not think Mr. Abbey is very successful in the portrayal of Shakspeare's heroines; his Desdemona is disappointing; but on the other hand he gives a very fine and remarkable study of Iago, which forms a plate by itself.

The *Fortnightly* contains a short but remarkable article by M. Maeterlinck (translated) on "Rome." We cannot give a *resumé* of an article in which almost every sentence embodies an original thought; but we recommend it to thoughtful readers, it will give them some new suggestions about Rome, both in the antique and the Renaissance phase of her wonderful history. The same number contains an article by Mr. E. V. Heward on "The Belted Giant of the Solar System," summing up in a non-technical manner the present position of our knowledge as to Jupiter. One circumstance is mentioned which many readers, even interested in astronomy, may not be aware of—viz., that the occultation of a star by Jupiter is not instantaneous, the star being more or less visible for about ten seconds after the limb of the planet has covered it; a convincing proof of the vaporous condition of at all events a great depth from the surface.

The subject of Rome comes up again in *Longman's Magazine*, where "F. R. C. S." writes a most eloquent and picturesque article under the title "The First Sight of Rome," which should be read by any who have this "first sight" in immediate expectation. As the writer says, the first sight of Rome is a tremendous event in any man's life, "and he would be a fool who should go to Rome offhand, without forethought, without reverence, without study." We fear there are many such fools. "F. R. C. S." suggests that the passengers, like the baggage, should be examined at the frontier, and the stupid ones, who have no business to see Rome, sent back, for further study, to Basle; "it would be difficult to find a worse punishment"; but the reason for this special animus against Basle does not appear. The examination suggested would at all events have stopped out such visitors as the English lady who observed—"Rome is very nice now; you can get everywhere by tramcars."

In the *Contemporary Review* we read with a certain refreshment an article by Mr. E. Wake Cook on "Progress or Decadence in Art," in which he has said the plain truth in regard to the present absurd craze on the part of art critics and some artists who mistake decadence for progress, and imagine that ugliness, crudeness of colour, and bad drawing, are signs of a regeneration of art. The article is forcibly written, and expresses what probably a good many people really think, only they do not like to be out of the fashion. Mr. Cook's characterisation of Whistler, though perhaps a little exaggerated, is we think not very far from the truth. He thinks Lowell's description of Edgar Poe would fit Whistler very well—

"Two-fifths of him genius, and three-fifths sheer fudge."

The *Antiquary* contains an article, which we hail with delight, on "Miss Marie Corelli as an Antiquary." As the writer says, "there is no particular sin in not understanding mediæval church architecture and its various accessories, but to write at length on topics of which you have not even an elementary knowledge is a downright evil, particularly if you have succeeded in gaining the ear of the less educated and less refined of the novel-reading classes." Some of the instances given are delightful. An article on "The Early History of Panoramas," by Mr. G. L. Apperson, deals with a curious and rather novel subject. The name of de Loutherbourg is connected with one of the most successful of these shows, the "Eidophusikon," which appears to have attracted both Reynolds and Gainsborough, the former recommending any of his lady friends whose daughters cultivated drawing to take the girls there, as "the best school to witness the powerful effects of nature"; though why nature herself would not have done as well one does not understand. However, de Loutherbourg was a landscape artist of some power, and probably was able to give to his panorama something more of real art than was commonly found in such displays.

The *Pall Mall Magazine* contains a picturesquely written article by Mr. W. Hyde on "The Thames at Night," accompanied by some fine and effective illustrations drawn by the author.

To the *Gentleman's Magazine* Mr. McInnes contributes a historical or biographical sketch of "The Duke of Bridgewater and his canal."

LIVERPOOL ARCHITECTURAL SOCIETY.

THE opening meeting of the session was held on Monday, the 10th inst., when the President for the session, Mr. P. C. Thicknesse, delivered an address. After commenting briefly on some local subjects of interest, Mr. Thicknesse continued:—

"I take it that no one in this room will deny his interest in architecture itself, and it follows that none can do other than admit his interest in the way we all, young and old, do our part in carrying on the work of architecture. To say to us that all our enthusiasm and energy ought to be devoted to our mistress would only be to repeat a platitude. I speak to everyone here, because some of our young members need perhaps teaching or reassuring of this, and our elder members will not mind being reminded that we can do no good for so great a mistress, if we are not wholly and entirely devoted to her. However long we may have been working for her and for her interest, we can never be so perfect in knowing her thousand sides and thousand interests that we can be sure of having mastered all the departments into which her service leads us.

"Our enthusiasm should, in my opinion, be great enough to make us put aside the mercenary idea that we shall make a fortune out of her, and make us well content if we make a livelihood. I am sure anyone entering our profession who does not believe this, but comes among us to make money, would be far better breaking stones—at least, so far as architecture is concerned. The most successful architect is the man who designs most the beautiful, comfortable, and well-arranged buildings, not the man who makes most money out of it or 'lays the heaviest burden on the earth.' Some few, very few, have made a fortune out of architecture; but, when we look back and think of the work which lives, and which we all admire, is it not the work of men who have worked, not for the money they made, but for architecture—men who loved their work and worked for it entirely? There is too much of this mercenary idea among us, I think, and it encourages the enemy to blaspheme against us—the enemy who will think, whatever we may say or do, that we make a building more expensive in order to make another shilling for every extra pound we make our clients spend on the building. This is, of course, a most absurd idea, but it is said and, I think, believed by many. However untrue this may be, I think it is true that we some of us think of a job as bringing us so much money, when we should be thinking how best we may serve our employers and architecture.

"The real difficulty of our work, as indeed all knowledgable men must recognise, is the difficulty of knowing sufficiently about the numberless trades and materials we are dealing with in every building we work on, as well as knowing the particular uses to which the building we are constructing is to be put. To find out these latter really well is often almost impossible, for we should know—and know it more than superficially—how every room is to be used, and what each man in it has to do and how he does it, and, therefore, to be able to imagine the story of his life in that room.

"I understand that this is felt so greatly by some of the men we most look up to for the beauty of their work, that, in order to minimise the number of the subjects they must understand, they have given up looking into many practical parts of building and leave to others anything which does not strictly belong to the design part of their work. Kitchen ranges, sanitary fittings, and the like are too dull, perhaps, for an 'artist' to know about; still, as they are a part, and a most important part, of a building—for who wants to live in the most lovely of houses and have a kitchen range that sends your mutton up either raw or baked hard?—I cannot see myself how a building is to be designed unless these things are as much in our thoughts as the beauty and utility of, say, the drawing-room chimneypiece, or the strength of the foundation. The whole and every corner of a building must be thought out and arranged for by the architect, or the building will be a failure—a failure artistically as well as practically, because it cannot be really artistically good unless it is fitted for its purpose in each and every detail, however small that detail may be.

"I have heard of an architect (there may be many) who had a committee, so to speak, of all trades, with him as chairman, to carry out the work. This plan, no doubt, is an excellent one in theory, but I fear that in practice it would be found to waste time and lead to difficulties in extras and other matters. Of course, there can be no doubt that the most ideal of all arrangements for building would be that an architect should have only one building at a time, that he should live on the job, and think and do nothing else until he has finished it—become, in fact, a glorified clerk of works. But we must live, and I fear we should have but little butter and no jam on our bread out of our 5 per cent. if we carried out that plan. However, if this could be done, then our friend's committee would be excellent; but, until we get to so high a state of perfection as that, I am afraid that we must work as we are and know as much of every man's work—all trades and all materials—as possible.

"Of 'ghosts' I will not speak, for since Pecksniff we have been made sick with the talk of ghosts. We all know that delightfully-conceited chap who thinks he does all the work of the office, and says so. We don't believe him, and in most cases find, when he leaves, that his master does the same work—often excellent—which he did before.

"I am so little afraid of being said to keep a ghost, that I am going to lay myself open to the charge of saying that many go too far in the opposite direction and make assistants and pupils into hands instead of helpers; and thus make our offices too 'officey,' not enough like ateliers. I heard of a man the other day who made one of his assistants into a drainage man, to do nothing else but drains. And certainly men often come into our offices who have never seen any building they have been working on in course of construction, and know no more of it than the drawing they have made. The effect of this way of working is to stifle all interest in and enthusiasm for architecture and their work, and to make them machines who care only for the drawing and not for the building, and whose duty it is to be in a certain place at, say, nine o'clock, have an hour for luncheon, and leave at 5.30, unless their chief is out, when they run away, or play cricket in the office as soon as they are sure he won't be back or find out.

"Now, that this state of things happens even in a few offices may be partly because the younger members of our profession are not conscientious enough; but I am sure it is more the fault of the system under which some try to work; this system which makes the assistant and pupil drudges, and instead of encouraging interest in our work, stifles it and makes architecture appear a grind as hard and uninteresting as continual tracing. It is a system which is bad because it is to the disadvantage of everyone concerned and of the work itself. The master architect gets his work done by men whose real interest in life is outside his work (and no man can do good work, however conscientiously he may try, without interest in it), and hence the mechanical, often wonderful, drawings, made more or less like the architect's sketch or small scale drawing. No, I say it without fear of contradiction, there is only one way to interest a man

in architecture, and that is by interesting him in the building and not in the dull paper representation of it only. Can there be anything more futile (and it is the outcome of this system) than the design of what I call a paper architect, who only makes drawings, plans, elevations, and sections, which might as well, as far as he is concerned, be carried out in brick, stone, or terra-cotta, wood, or even Willesden paper? Yet we see the work of such architects every day. The man has not even thought of it in perspective, and never as a building, only as a series of drawings.

"We are all students—or should be: Heaven help us, if we are not. Then let us treat our pupils and assistants as junior students, and try to teach them while they are doing our work; not only teach them by letting them copy our drawings or correcting theirs, but also by letting them know the why and wherefore of all the work. Let them help us all through every part of it. Let them have charge of one or more jobs, and stick to them from beginning to end. Let them see the estimates, know how we have to reduce them, know the prices of the work and each part of it. Encourage them to know everything connected with the buildings, and, above all, to see the building they are working on, in office hours, as it proceeds, and find out how things are done, both in the office and on the building. We shall then have men interested in their and our work. They will feel their responsibility in the work. They will be working for themselves and us at the same time. I don't say we shall put old heads on young shoulders—I would be the last to wish to see it done—but there is plenty of room both for cricket and football, or more serious things outside our profession, as well as for architecture and the hundred things belonging or allied to her. I can say for myself that, when an assistant here in Liverpool in Mr. Doyle's offices, I had these advantages, and, although I was an enthusiast before, the system under which I worked there doubled my interest and my feeling of responsibility for my work, and I feel grateful for it.

"You may say this involves more trouble; I quite agree. But I say it is worth it—a thousand times worth it—because it interests the younger members of our profession, and thereby helps the cause of architecture, and that should be even a greater thing to us than the little bit of it we are doing. I would even go further, and encourage assistants and pupils to design parts of the work. The whole conception the architect himself must do, but let the assistant or pupil do parts under the architect's correction. That will make him feel still more as if the work were his own. My whole object is to make more interest for every man connected with us in his work.

"This is only the beginning of what I would wish to see done. I would interest contractor, clerk of works, mechanics, and even labourers in the work. These mechanics, for instance, work in an exaggerated form in the same way in which many, I fear, of our assistants and pupils work. So many bricks must be laid in such a way, and they know no more than the bricks themselves what is to come after; they have no interest in their work; it is dull drudgery. Many of us complain that our workmen are not like the men of old. Why? Because they have no interest in their work. They make mistakes, and we call them fools; they do bad work, and we call them other names. It may not be our fault, but it is not theirs, and we shall never make it any better till somehow interest is brought into their work.

"To the assistants and pupils I say all this, as well as to the master architects, because we must all work together—the whole spirit of it is unity, the work being the work of a collection of men under one head, who is responsible to the world and his employer for it. If the younger members won't help, it is almost impossible to carry on work in the way I describe; for, if every man does not feel his interest and responsibility, and that he is on his honour to play fair with his chief, then he won't work unless under compulsion.

"The very nature of beginners' work is necessarily dull and boring; and, though much has been done to interest beginners by that most excellent plan which Professor Simpson instituted and carried out so successfully at the University, by interesting men in architecture and teaching the rudiments of the most congenial parts of our work in a way not possible in an office, yet even now it must be an ugly drop to come from making designs and details for themselves of pleasant parts of a building to the often rather sordid little details of out-of-the-way corners of a building, or tracing sheets of full-size details which they have hardly time to study. But I would say, feel the work as your own, and the interest comes at once. If it is only a coal-cellar door, it has its own story; it must, for instance, open out, or it won't shut; there is a reason for each part of it and a story belonging to the whole, and it will help your imagination to rise to do more interesting things well if you will find out that story. It is imagination to throw yourself into every man's use for the thing you are designing, which is the greatest thing you can teach yourself. If the work is interesting, you will find your office hours too short, and you will not spend your time in wondering when five o'clock will strike.

"Many of us complain of the small amount of old work there is to be found up here. Surely there are heaps of things, new and old, good and bad, to study and criticise, if we will only look out for them. I would say, also, go to the contractor, clerk of works, or foreman on a building, and he can, and I have always found will, gladly show us many things which will help us to learn building.

"For be sure of this at least—that building without architecture may be a poor thing, but architecture without building is nothing. You can't make a thing really beautiful if it won't stand, nor if it is not beautifully fitted for its work.

"My subjects have been interest, enthusiasm, and a greater sense of unity in each office, and a little more feeling of fellowship between the younger and elder members of the profession; may I say, also, that I would like to see rather more fellowship and friendliness among all our members, young or old. I feel this as an important, the most important, part of the use and work of our society; for, if we met more, and knew each other more, we should like each other, I am sure, and be more united, and help each other more to work heartily to the great aim of our existence—the improvement and development of architecture."

THE PRINTING-HOUSE, CAMBRIDGE UNIVERSITY; AND THE "PITT" PRESS BUILDINGS, 1804-1904.

WITH the close of the current year will terminate the existing partnership in the printing and publishing businesses of the University Press between Mr. John Clay and Mr. C. F. Clay and the University of Cambridge. Some changes will be made in both businesses, and a new building is to be erected on the south side of Silver-street. The business of the University Press has been conducted in its present locality during the past 250 years, and on the existing site between Silver-street and Mill-lane since 1762. In that year the White Lion inn, on the south side of the former street was purchased, and the erection of the existing buildings was begun just one hundred years ago. The press has its origin from a grant made by King Henry VIII. in 1534 to the University of the right and privilege to appoint three printers or "stationers." Until the middle of the XVIIth century the University printers did the work in their own homes. John Siberch, the first to be so appointed, lived in the Royal Arms, since incorporated in Gonville and Caius College, opposite St. Michael's Church in Trinity-street. Another, Thomas Buck, worked in what had been the refectory of St. Augustine's Priory, situated between Luthburne, since Free School, lane, and Slaughter-lane, now Corn Exchange-street. The Friars' refectory—afterwards the site of the Museums and Natural Science Lecture Rooms—is plotted in Hammond's map of 1592. In 1655 the President and Fellows of Queens' College leased to the University a parcel of their garden-ground on the north side of Silver-street, abutting also on the east side of Queens'-lane, whereon John Field, appointed as printer in 1654, built his workshops, around the old alms-houses in Silver-street, which Carter, writing in 1753, describes as being "now in use." Some forty years afterwards Field's shops were extended on the north-west side by the erection of workshops along the east side of Queens'-lane, opposite Queens' College; in 1716 those later shops were made over for uses of the Professors of Chemistry and Anatomy. James Gibbs's plans of 1715 for a senate house, library, schools, etc., comprised a new printing-house to occupy the south wing on the King's-parade site, but that portion of his scheme was not carried out. In 1762 the University authorities purchased the White Lion inn, on the south side of Silver-street opposite Field's shops, for the building of new printing works. In 1821 the Syndics acquired for 5,060*l.* the adjacent site of the Cardinal's Hat, or Cap, inn, which had a frontage to Trumpington-street, eastwards, and extended to a considerable depth westwards, between Silver-street and Mill-lane on its north and south sides respectively. On that ground James Walter, architect, erected in 1826-7 the buildings which stand on the west side of the quadrangle—the court-yard has been roofed-in since—and a house in Mill-lane for the master-printer's residence. In the meanwhile the Senate and a committee of subscribers to the William Pitt Memorial Fund had agreed to devote the surplus, after payment of 7,000*l.* for Chantrey's statue, set up in Hanover-square in 1831, to an enlargement of the Press to be called by his name (see Willis and Clark's "Architectural History of the University of Cambridge," 1886). Seven architects were invited to submit designs. In 1829, E. Blore's were chosen, and, a sum of nearly 12,000*l.* having been expended in buying more ground, the new Pitt Press was opened by the Marquis of Camden, Chancellor of the University, on April 28, 1833. Blore's building, facing Trumpington-street, was erected at a cost of 10,711*l.* 8s. 9d. The main façade, constructed of stone, is after the Late Perpendicular style; the block contains three floors, and has a lofty central tower. Further extensions were made at the rear on the site of Black Lion-yard in 1863 for the type-foundry, and nine years afterwards for a machine-room and warehouse on the site of Diamond-court, both on the Silver-street side. Then in 1877-8 was erected the large building in the south-west-corner of the quadrangle, after Mr. W. M. Fawcett's plans and designs, and some alterations and additions were carried out eleven years ago by Mr. Henry Dawson, architect, on the contract of Mr. W. Tindall, of Cambridge, for 6,184*l.*

VERIFICATION OF STANDARD MEASURES.

WE have received the following circular from the Standards Office of the Board of Trade:—

"The following measures of length can be tested by the Standards Department:—

"'Metal measures in the form of 'ribands' or 'tapes':—100 links or 66 ft.; 50 links or 33 ft.; 100 ft.; 50 ft.; 25 ft.; 20 metres; 10 metres.

"The whole or total length only of each of the above measures will be tested, except in the case of a standard measure required for survey purposes, when the corrected values of each part or interval of the measure will be given—*e.g.*, every 5 metres on 20 metres, every 10 ft. on 100 ft.

"Unless otherwise required, each measure will be tested under the following condition as to normal tension, 'pull,' or stretching-weight when the measure under test is supported throughout its whole length on a plane and even base:—

	Metal Measures.
100 link riband	10 lb. avoir.
100 ft. to 50 ft.	
20 metres	5 kilograms.
10 metres	

"Linked chains, or round-wire chains composed of links and rings, and tapes made of linen or other fabric are only verified for certain official purposes.

"All results are reduced to 62° F. for links and feet; and to 0° C. for metres.

"The coefficient of linear expansion of a metal measure is taken to be as follows, unless otherwise stated:—

	For 1° F.	For 1° C.
Steel	0·00000689	0·00001240
Nickel-steel (35·7 nickel, 64·3 steel)	0·000000487	0·000000877

"Metal measures should have a brass disc (½ in. diameter) affixed upon which to place the official stamp.

"In certain cases Treasury fees are required, particulars of which can be obtained at the Standards Office. Fees are not payable on measures for Government Departments or for Local Authorities.

"A certificate of verification is given with each measure, in which its error or difference from standard is stated, and also, in some instances, the modulus of elasticity and 'sag' of a chain.

"On standard steel tapes for the use of local inspectors of weights and measures, an error on manufacture of 0·1 in. is allowed in excess or

deficiency. On other steel standards 0·25 in. is allowed ; and on linen tapes 0·5 in. is permitted.

"Metric measures should be accurate to about 5 millimetres in 20 metres or to one four-thousandth of the whole length. The verification of measures can be carried out to nearly one-four-hundred-thousandth part of the whole length."

THE ARCHITECTURAL ASSOCIATION CAMERA AND CYCLING CLUB.

ON Tuesday last Mr. D. M. Mackenzie read a paper on Westminster Abbey, illustrated by slides by Mr. S. B. Bolas. After explaining the plan, which showed the dates at which the various portions of the building were erected, Mr. Mackenzie described the interior of the building, including many of the multitudinous tombs and memorials, and the manner in which the building had been altered from time to time. Many of the slides, all of which were of splendid technical quality, possessed fine pictorial effects, notably those taken looking towards the transepts. Details of the triforium and of the tombs—especially that of Henry VII.—were shown, and were exactly the kind of photograph the architect always wishes, and usually fails, to procure.

A tour round the outside of the building followed, in which many fine slides of the buttresses were shown ; Mr. Mackenzie remarking that the western towers were never completed, and that Wren had little to do with the final design, which was due to Hawksmoor, Wren wishing to complete them in the Gothic manner.

The meeting terminated with the announcement that in the recent photographic competition, inaugurated by the club to stimulate the study of architecture by photography, Mr. Alan Potter had been awarded the prize of three guineas for his set of photographs illustrating the treatment of apses in Italy.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring Gardens, Mr. J. Williams Benn, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee it was agreed to lend Bethnal Green Borough Council 30,000*l.* for pipe sewer reconstruction works ; Hackney Guardians, 5,800*l.* for erection of casual wards ; Kensington Borough Council, 12,050*l.* for street improvement ; Lambeth Borough Council, 7,786*l.* for jarrah wood paving works ; Poplar Borough Council, 2,400*l.* for the purchase of a site for a depot ; Stepney Borough Council, 23,960*l.* for electric light installation and meters ; Stoke Newington Borough Council, 2,350*l.* for paving works ; and Wandsworth Borough Council, 36,000*l.* for contributions to street improvements. Sanction to the borrowing by the Westminster City Council of 2,146*l.* for brick and pipe sewer works, and Kensington Borough Council of 7,600*l.* for street improvement, was given.

Chairman's Address.—The Chairman then delivered the annual address to the Council. Speaking of the Main Drainage Committee, he said :—

"First, then, the health of the citizen depends largely upon the magnificent system of main drainage, which has made Greater London's death rate one of the lowest, for large cities, in the Kingdom. It fell from 18·5 per 1,000 in 1899 to 14·5 in 1903. This may be some compensation for the rise in another rate of which we occasionally hear.

"During the year 1903, under the chairmanship of Mr. Goodman, nearly a hundred thousand million gallons of sewage were treated at the two outfall works, and this output exceeded that of 1902 by nearly ten thousand million gallons ; so it is that new sewers are constantly needed and being constructed. Two such, costing three-quarters of a million, are in progress between Barking and Old Ford, and from Crossness to Deptford and Catford.

"So anxious was the Council to provide additional relief sewers and pumping-stations to carry away storm water that, in February last, it approved a scheme involving the expenditure of three-quarters of a million pounds for that purpose. The main drainage extension scheme and these flood relief works should do much to obviate these serious inundations. During the year the alarming suggestion was made that shell fish in the Thames estuary were contaminated by London sewage. It goes without saying that the Council would be most loth to damage either a great industry or a nourishing and popular food. But the special report of the Committee to the Council of February last shows that the suggestion was groundless. This conclusion, arrived at by bacterial examination, is fortified by the opinion of the Royal Commission on Sewage Disposal, which conducted an independent investigation."

In reference to some other Committees, the Chairman remarked that :—

"The Building Act Committee, presided over by Captain Hemphill, are concerned under the Factory Act in preventing our factories becoming death traps in case of fire. In the course of the year they surveyed some 782 cases. In administering the Building Act they dealt with 2,251 applications, 2,000 complaints, and 3,638 danger structure cases. The Act however requires amendment, and suggestions have been received from the Metropolitan Borough Councils, from other public bodies, and from various Committees of the Council. Although the work is one of considerable magnitude and difficulty, the Committee hope to be in a position to submit amending proposals in time for a Bill to be introduced into Parliament in the session of 1905.

"There are municipal heirlooms beside landed property, and I regard with much interest the work of the Historical Records, etc., Committee, of which Mr. Dolman was chairman. I venture to think we devote too little attention to the æsthetic side of London life, and too readily allow ancient landmarks and memories to be obliterated. Suitable tablets now indicate those houses in London which have been inhabited by distinguished Englishmen, and some historical buildings, of great interest to our city, have been saved from destruction. London, to its credit, was the first of the municipal authorities to obtain power to render this small service to future generations. The Horniman Museum is being made a most valuable educational institution—the first, I hope, of a series of school museums which will awaken interest and impart information in a manner beyond the power of book-study.

"Not only is the citizen worker protected and catered for in the various ways which I have passed under review, but some attempt has been made to improve the wages conditions of his fellow-workers. As an object lesson, showing what can be done under the best conditions extant, and for its protection and convenience, the Council still successfully keeps up the Works Department.

The Works Committee, presided over by Mr. Torrance, present figures which speak for themselves. The result of works completed during the year and reported to the Council shows, in the case of estimated works, a balance of cost below final certificate of 31,614*l.* 7s. 11d., or 9·61 per cent., and in the case of jobbing works a balance of cost below schedule value of 3,547*l.* 10s. 11d., or 7·11 per cent. The Works Committee during the year executed work to the value of 416,205*l.* 16s. 6d. But apart from these satisfactory figures there is no doubt that this useful department has saved the ratepayers a considerable sum by the prevention of those prohibitive prices met with in our earlier years for that huge mass of work which still goes to contractors.

"With regard to our labour conditions it must be remembered that we ourselves observe such regulations as we impose on contractors.

"Throughout the Council's service an endeavour has been made, without pampering the men, to give that thoughtful and sympathetic consideration to such questions as hours, wages, sick pay, holidays and uniforms, which binds together employer and employed. We cannot, of course, do all that is asked, but we have done much to make tolerable the position of these municipal servants."

The address was ordered to be printed.

Mr. T. J. Bailey, architect (Education).—The General Purposes Committee reported as follows, the recommendation being agreed to :—"The Council, on July 26, 1904, resolved that Mr. T. J. Bailey should be continued as head of the architectural department (education), under the title of architect (education), and referred it to us to report as to the position which Mr. Bailey should hold in the Council's service. We have carefully considered the matter, and we think that, in view of the fact that the Council has decided to keep the architectural department (education) separate from the department under the superintending architect, it is desirable for the present that the chief officer of this department should rank as the head of a department. The circumstances are unusual, and we think it should be clearly understood that this decision relates only to the present holder of the office, and does not in any way prejudice any action which the Council may take in the future with reference to the position. We recommend that Mr. T. J. Bailey, during his term of service under the Council as architect (education), do rank as head of a department."

Long-grove Asylum.—The Asylums Committee reported as follows in regard to this building :—

"On March 24, 1903, the Council in accordance with section 239 of the Lunacy Act, 1890, authorised the Asylums Committee to proceed with the erection of a new asylum for 2,000 patients on the Horton estate, and on March 31, 1903, voted the sum of 97,210*l.* towards the cost of the provision of such asylum (the Long-grove Asylum), viz., for the foundations, roads, architects' and quantity surveyors' fees, additions to the central station for the supply of electric current and well sinking. On January 26, 1904, a further sum of 6,550*l.* was voted for the fencing of the estate, clerks of works' salaries and contingencies, making a total sum of 103,760*l.* The contract for putting in the foundations was let to Mr. Charles Wall, of Chelsea, on September 11, 1903, and the work has since proceeded with all dispatch. The foundations of the main building are now practically completed, and the contractor is putting in the foundations of certain of the detached buildings.

"The Council will, no doubt, remember, it is proposed to build a replica of the Heath and Horton asylums with such modifications as have by experience been found desirable. We have found the detached buildings for patients to be so advantageous that we have increased the number to nine, as against six at Horton. The designs of these villas have been most carefully considered, entailing visits to other asylums, and those we have decided on will, in our opinion, be an improvement on those at Horton asylum. The accommodation for patients in the main building has been correspondingly reduced. We have also decided to adopt the principle of open corridors wherever possible. This will, we think, be safer in case of fire and ensure better ventilation besides reducing the cost of the building. All the plans have been approved by the Home Secretary.

"In accordance with the wishes of the Finance Committee we agreed that, before asking the Council to vote any further sum for the erection of the asylum and its equipment, an estimate should be submitted to them of the cost of erecting the superstructure based upon a quantitative survey, and on June 28 last the Council approved our proposals—viz., that we should as soon as possible invite tenders for the work of erecting the superstructure from selected contractors—that the contract should be an omnibus contract and include all the remaining building works, roads, etc., a provisional sum being inserted for the farm and garden buildings, and that the engineering works (electric lighting, heating, laundry machinery, kitchen and bakery plants) should be the subject of later contracts. The Council further agreed that the contract should provide for a penalty for non-completion within the contract time, which we have fixed at two and a half years, and a bonus for earlier completion ; also that a clause should be inserted in the contract giving facilities to the contractor to put down a railway to the site, he to negotiate for any necessary wayleaves.

"We accordingly invited tenders from thirteen firms, but two of these firms returned the form of tender, etc., sent them, one objecting to the conditions of contract, the other stating that the work was more than they could undertake at the present time. The remaining firms sent in tenders as follows :—

	Amount.
Foster and Dicksee (Rugby)	£359,953
C. Wall, Ltd. (London)	368,996
J. Carmichael (London)	371,191
Holloway Brothers (London) Ltd. (London)	371,200 (Subject to modified form of contract.)
Holland and Hannen (London)	373,311
Holliday and Greenwood, Ltd. (London)	374,947
Patman and Fotheringham, Ltd. (London)	375,385
Leslie and Co., Ltd. (London)	379,047
H. Lovatt, Ltd. (Wolverhampton) ..	385,861
Mowlem and Co., Ltd. (London)	397,494
F. and H. F. Higgs (London)	401,000

"The priced bills of the lowest tenderers (Messrs. Foster and Dicksee) have been examined by the quantity surveyors engaged by us, with the result that, with the exception of clerical errors showing a sum of 60*l.* 10s. to be deducted from the amount of the tender, the bills are in order. We have therefore decided to recommend the Council to accept the tender of Messrs. Foster and Dicksee for the work. The amount of the quantity surveyors' estimate based upon a quantitative survey has been communicated to the Finance Committee, to whom we have submitted our revised estimate. . . . It will be observed that the figure included in the revised estimate for 'foundations' has been reduced by 10,000*l.* This is the sum estimated by the architect as necessary to be deducted from the original figure owing to the putting in of the foundations of certain of the detached buildings (the sites of which had to be altered) having to be transferred to the superstructure contract. This course has been rendered necessary in consequence of the local authority having declined to agree to the diversion of certain footpaths on the estate, except under conditions we could not recommend the Council to accept. The amount of 10,000*l.* is, therefore now merged in the figure for the superstructure. We recommend (*a*) That the estimate (No. 4284) of 468,353*l.*, submitted by the Finance Committee for the completion of the erection of the superstructure of the Long-grove asylum, Epsom, be approved, and that the Asylums Committee be authorised to incur expenditure not exceeding that amount for this purpose. (*b*) That the tender of Messrs. Foster and Dicksee, amounting to 359,892*l.* 10s., for the erection of the superstructure of the Long-grove asylum including the putting-in of the foundations of certain of the detached buildings thereat be accepted, and that the solicitor do prepare and obtain the execution of a contract to give effect to the tender."

Mr. Dew moved, and Mr. Gosling seconded, as an amendment that as the lowest tender was 21,953*l.* above the architect's estimate, the recommendation be referred back to the committee with a view to the work being carried out by the Works Committee without the intervention of a contractor.

Mr. Howell J. Williams said he thought the matter ought to be referred back for further consideration.

Mr. Torrance, Chairman of the Works Committee, said he was not in favour of the amendment.

Mr. E. White deprecated the committee's sending this large contract to a provincial firm when the building trade in London was in a bad state, more carpenters and joiners being out of work than there had been for many years. The wages of skilled mechanics in Rugby was 8d. an hour, whereas in London it was from 10½d. to 11d. If they worked the contract out on that basis they would find that the difference in wages alone would account for the difference in the amount of the lowest tender.

Mr. Crooks, M.P., said there could be no doubt that if the contract was given to a Rugby firm the joinery work would be done at Rugby, and that was manifestly unfair to London people. He supported the amendment that the matter should go back to the committee for further consideration, because he felt convinced that by finding employment for London workmen they would be doing a lasting good, and at the same time save money in the end.

After further discussion the Council divided:—

For the amendment	40
Against	68
Majority against	—28

The amendment was accordingly defeated, and the recommendation of the committee giving the contract to Messrs. Foster and Dicksee adopted.

Motor-Cars in Public Parks.—Mr. Sanders moved a reference to the Parks and Open Spaces Committee to consider and report as to amending the by-laws so as to prohibit the entrance into parks under the Council's control of motor-cars which emit offensive odours.

Mr. Waterlow thought that the Council could hardly seriously consider the matter, as its practical working was almost impossible.

The motion was rejected, and the Council adjourned.

APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses :—

Line of Frontage and Projections.

Hampstead. An iron and glass shelter at "Belle Vue," Shoot-up-hill, Brondesbury (Mr. F. S. Hammond for Mr. M. de Meza).—Consent.

Wandsworth.†—Bringing forward of the frontage of "Garwood," "Wardleville," "Wroxham," and "St. Leonards," Rosendale-road, Herne-hill (Mr. P. C. Davies for Mr. R. Parry).—Consent.

Strand.—The retention of three wood and glass showcases in front of No. 1, Piccadilly-circus, St. James', Westminster (Mr. A. Oldcorn).—Consent.

Wandsworth.—Buildings upon the site of Nos. 207, 209, and 213, Balham-high-road, Wandsworth (Mr. E. Schneider for Messrs. W. Wallis and F. J. Pettit).—Refused.

Hammersmith.—An addition in front of the Primitive Methodist Church and Schools, Dalling-road, Hammersmith (Messrs. Davidson and Phillipson for the trustees of the church).—Refused.

Kensington, South.—One-story shops upon part of the forecourts of Nos. 54 and 55, Church-street, Kensington (Mr. W. G. Hunt for Mr. C. Sale).—Refused.

Kensington, South.—One-story shops upon part of the forecourts of Nos. 50 and 52, Church-street, Kensington (Mr. W. G. Hunt for Mr T. Norton and Messrs. Weeden and Shrimpton).—Refused.

Width of Way.

Kensington, South.—A motor-car house at the rear of No. 23, Brompton-square, Kensington, with external walls at less than the prescribed distance from the centre of the roadway of a street leading out of Cottage-place (Messrs. W. and E. Curtiss for Mr. J. Oswald).—Consent.

Hammersmith.—Two houses on the north side of Hammersmith-terrace, Hammersmith, with external walls and boundary fence at less than the prescribed distance from the centre of the roadway of Terrace-court (Mr. G. Marsh).—Consent.

St. George-in-the-East.—A playshed on the west side of Globe-street, High-street, Wapping (Mr. T. J. Bailey for the Education Committee of the Council).—Consent.

Woolwich.—An iron and glass shelter at a building on a site situated between Nos. 194 and 220, Plumstead-common-road, Plumstead (Mr. F. Bethell for the Royal Arsenal Co-operative Society, Ltd.).—Consent.

Limehouse.—A warehouse upon the south sides of Narrow-street, Limehouse (Mr. J. M. Knight for Mr. Hough).—Refused.

Width of Way and Line of Frontage.

Hammersmith.—An addition to St. Vincent's House, Queen-street, Hammersmith (Messrs. H. F. Tasker and Slater for Madame M. Dubois).—Consent.

Width of Way and Construction.

Finsbury, Central.—A wood and iron mission hall, on the south-eastern side of Exmouth-street, Clerkenwell (Messrs. Humphreys, Ltd., for the Rev. H. C. Frith).—Consent.

Space at Rear.

Marylebone, East.—A modification of the provisions of section 41 of the Act with regard to open spaces about buildings, so far as relates to the erection of an addition to No. 31A, Weymouth-street, St. Marylebone (Mr. L. W. Ridge for Col. Matthey, C.B.).—Consent.

Formation of Streets.

Wandsworth.—That an order be issued to Mr. J. S. Gabriel, sanctioning the formation or laying out of new streets for carriage traffic on the Fisher estate, between Leigham-court-road and Velley-road, Streatham.—Consent.

The recommendations marked † are contrary to the views of the local authority.

ARCHITECTURAL SOCIETIES.

NORTHERN ARCHITECTURAL ASSOCIATION.—The members of the Northern Architectural Association visited the new council schools, North Heaton, and St. Gabriel's Church, Heaton-road recently. The new school cost about 11*l.* per head. Mr. S. D. Robins, the architect, conducted the party over the building, and was cordially thanked, on the motion of Mr. Clark (Darlington), seconded by Mr. Brown (Sunderland). At St. Gabriel's Church the members were received by the vicar (Rev. Robert Trotter) and the contractor (Mr. Baston). Hitherto the church has consisted of the nave and south aisle. There is at present being added a north aisle and transept, part of a tower, with an organ chamber, and the chancel. This extension will, it is expected, be completed by the middle of next year, leaving only the south transept, vestries, morning chapel, and baptistry to complete the building. Lord Armstrong is building the tower, or a portion of it. When completed the tower will be 116 ft. high. The seating accommodation up to the present has been 500. The present scheme of extension will provide for 300 additional worshippers, and when the church is fully completed the accommodation will be furnished for 1,000. The architect of the church is Mr. F. W. Rich.

Correspondence.

THE LIABILITY OF COUNCILS FOR SANITARY INSPECTORS' ERRORS.

SIR,—The decision of Judge Addison, K.C., in the case of Johnson *v.* Bermondsey Borough Council, if legally sound, seems illogical and unfair. A principal should surely be bound by the act of a recognised agent, where loss is caused to another.

The Council gave the plaintiff notice to open ground and reconstruct a drain under a house. Examination showed there was no drain thereunder, but one existed next door. The mistake arose through renumbering of the houses. Plaintiff sought to recover the cost of examination.

The judge held that sanitary inspectors were, by law, the judge of whether drains required relaying or repairing, and if they, by reason of a defective nose or any other cause, made a *bonâ-fide* mistake, the Borough Council could not be held liable, and gave judgment for the defendant Council, without costs.

In this case it was not a question of judgment as to the need of repair as no drain existed. The order involved the owner unfairly in certain expenses, and its service in error constituted a depreciation of the property in the eyes of a prospective buyer, and, in fact, was more detrimental than a statement by an individual that the drainage of the house was defective, which would be tantamount to a libel, and actionable.

I should like to see the matter carried further, and to know if there is any precedent for the judgment.

E. W. HUDSON, F.S.I.

TECHNICIANS' ENGLISH.

SIR,—In the current issue of the *Builder* a reviewer of a book takes very proper exception to the composition of the author. My object in writing is not to defend that gentleman's English, but to point out that such diction is not at all uncommon among technicians. In the course of my business, I have had to prepare a great number of papers for publication, and I find that many people who consider themselves capable of writing them have a very vague idea of the structure of sentences. The result is a most involved production. The process of making it clear is something like this:—I get a leaf of foolscap covered with words. I start at the top with a sentence, and possibly go down two-thirds of the leaf before I come to a full stop. What it all means it is impossible to say. The first thing to be done is to try to get at the subject, and then at the predicate, marking off interposed clauses by commas or parenthesis. The result is generally the production of three or four short sentences for the original rigmarole which was not understandable. When the author sees his paper in print, he thinks what a clever fellow he is, or what wonderful people compositors and "readers" are to express so well what he intended! But "*palmam qui meruit ferat.*"

A SUB-EDITOR.

[*** We fear our experience is that many architects, as well as technicians, have most vague ideas as to the structure of sentences or the use of punctuation; and if we had made a list of all the wrongly-spelt words we have met with in communications from architects, it would be a formidable and distressing one. By the same post that brought the above letter we received a communication from an architect asking us to take a certain course "in the interests of the proffession." It may be said that such mistakes are of little practical consequence, but they imply a regrettable deficiency in general culture.—ED.]

ERRORS IN QUANTITIES.

SIR,—Being the surveyor who prepared the case for the plaintiffs in the case of Patman and Fotheringham *v.* Pilditch, I trust you will pardon me for troubling you with the following remarks, as I believe a wrong impression exists as to the complete decision in this case.

In your issue of July 16, p. 72, you report Patman and Fotheringham *v.* Pilditch; you say "The point decided is one of importance to building owners and contractors; we think it well to put on record the judgment of Mr. Justice Channell, which was as follows." The report of the judgment you then give is correct as far as it goes; but, unfortunately, you do not seem to have been in possession of the whole of Mr. Justice Channell's judgment, the concluding portion of which is very important, as it implies that the "total omission" of an item from the bills of quantities is "not an error," and would not have to be paid for as such (the case which he quotes being of that nature). You will note, also, that Mr. Justice Channell's words are:—"But I should have to deal specially with cases of things that everybody must understand are to be done, but *which happen to be omitted* in the quantities."

I enclose a copy of the concluding portion of the official transcript of the shorthand notes required to complete your report.

This modification of the judgment is worthy of note by contractors, and has a most important bearing on Clause 12A of the Schedule of Conditions of Building Contract sanctioned by the Institute of Architects in agreement with the Institute of Builders and the National Federation of Master Builders, since, to make this clause effectual, it should now read:—"Should any error appear in, *or omission be made from*, the bills of quantities," etc.

WALTER LAWRANCE.

COMPETITIONS.

CHURCH, NEW SOMERBY, GRANTHAM.—Mr. G. H. Fellowes Prynne has been appointed the assessor in this competition. One hundred and three sets of plans have been sent in.

VILLAS FOR THE COEDSAESON BUILDING CLUB.—We are asked to state that the result of the competition for these will not be known till November 2.

COWEN MEMORIAL, NEWCASTLE.—In connexion with the competition held recently for the purpose of obtaining designs for a monument to be erected in memory of Joseph Cowen, the model of Mr. John Tweed, of London, has been placed first. Mr. T. Eyre Macklin, Newcastle, has been awarded the second premium of 50*l.*, and the third of 30*l.* has gone to Mr. Kellock Brown, of Glasgow.

NEW LEWISHAM LIBRARY.—The plans selected by the Lewisham Borough Council for the new library to be erected at Brockley at a cost of 4,500*l.* are those of Mr. A. L. Guy, A.R.I.B.A., of Lewisham Park.

A MEMORIAL TO HALLEY.—A marble bust of Edmund Halley, the astronomer, executed by Mr. Henry Pegram, A.R.A., has been placed in the Borough of Shoreditch Library at Haggerston. Halley was born at Haggerston on October 26, 1656; his father, a member of an old Derbyshire family, was a wealthy trader having a soap manufactory in Winchester-street, in the City of London.

CHEAP COTTAGES FOR LABOURERS.—The Chertsey Rural District Council on the 11th inst. discussed a recommendation of their medical officer that the building by-laws should be so altered as to permit of the erection of cottages, in the rural district, of wood and corrugated iron, for letting to labourers at cheap rents. The recent action of Mr. Justice Grantham was eulogised, and the Council unanimously appointed a committee of farmers to consider the by-laws with a view to their early alteration.

Illustrations.

SAN LORENZO, VERONA.

THE view of the interior of this church is given in connexion with, and in illustration of, the first article in the present issue, to which the reader is referred.

NEW HÔTEL DE VILLE, SENS.

THE illustration of the new Hôtel de Ville at Sens is reproduced from the architects' elevation drawing.

The building was formally opened in April last. It is the result of a competition held in January 1901, in which the present design, by MM. Dupont and Poivert, was selected.

Owing to the practice prevailing in France of not drawing a scale on the paper, but only giving a note of it, the memorandum "Echelle 0.02" in the corner of the illustration is of course incorrect now that the drawing (a very large one) is reduced to the size of our page; but there are a good many figured measurements which will to some extent supply the place of a scale. The height of the campanile is 190 ft.

The exterior sculpture is executed by members of the Société des Sculpteurs; the interior sculpture is by MM. Dufeu, Jacquier, and Bersin. The decorative paintings on the ceilings were executed by M. Cavaillé-Col, the mural panels by M. Maugonot, and a historical painting by M. Scherrer.

The building is founded on concrete piles 23 ft. deep. The plinth is of Roche de Comblanchien stone; the main portion of the façade of Charentenay stone; the balustrades of Larrys stone. The campanile is of iron as far as the balcony, and of timber above that point. The roofs are of timber, and the floors of steel. The decoration of the main staircase is in stucco. The steps are of Comblanchien stone on steel framing.

We give also a sheet showing the decorative treatment of two of the ceilings, also reproduced from the architects' drawing.

We fear we cannot expect English architects, as a rule, to admire this work, which is in a style very contrary to the taste and feeling prevailing in this country at present. But it is of interest as illustrating an important new French building, and as showing the type of work which is in favour in France at present, since it obtained the first place in a competition.

The plan, traced from the architects' working drawing, is a very good one, and perhaps went for a good deal in the selection. The position of the circular "Salon d'Honneur," acting as a vestibule both to the Salle des Fêtes and the Salle des Mariages, and placed at the salient angle of the building, is a good point.

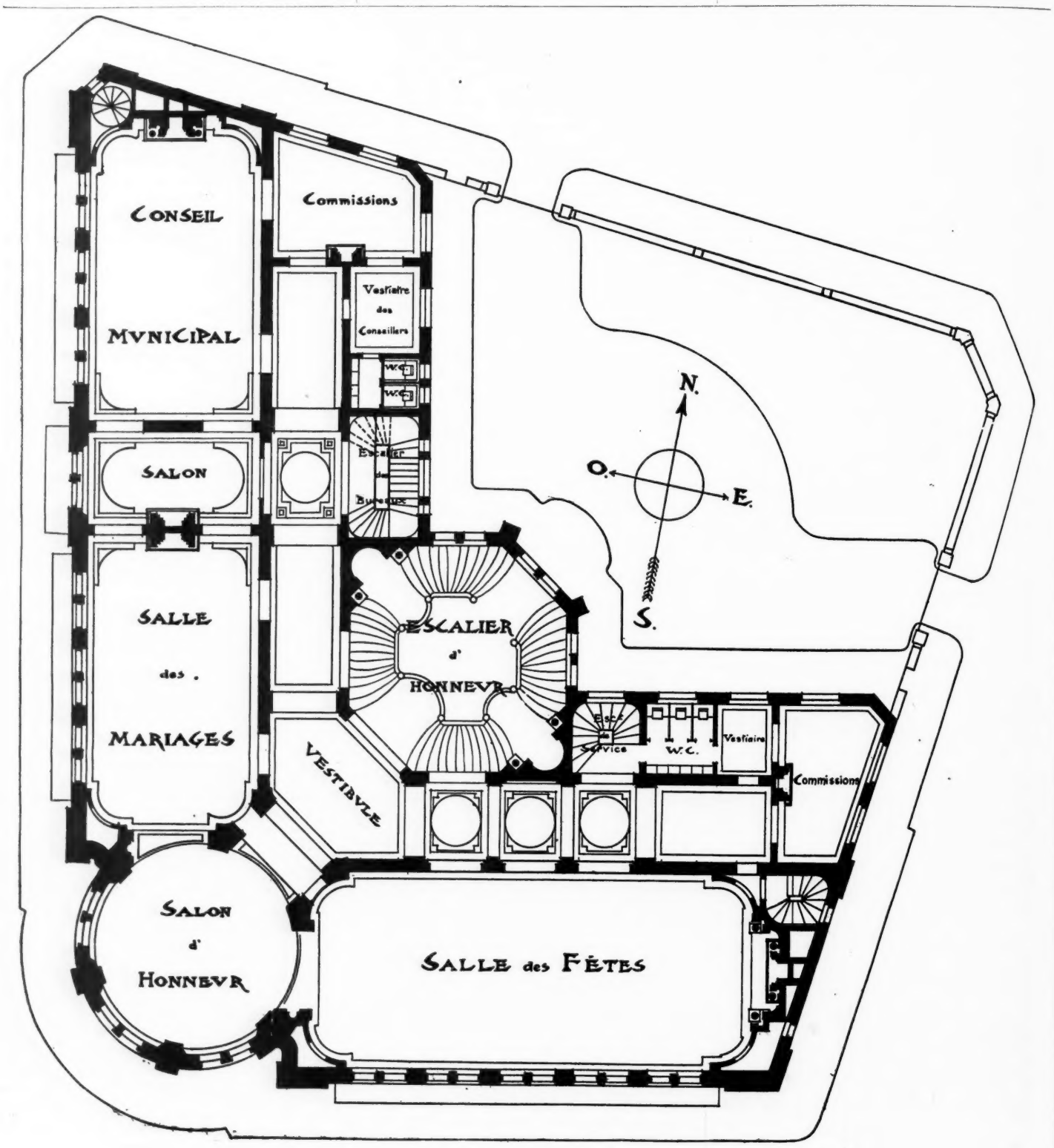
We are much indebted to MM. Dupont and Poivert for their kindness in lending their drawings. As a general rule it is exceedingly difficult to induce architects on the Continent to send drawings to England; so that the courtesy in this case is all the more appreciated.

THE WHITE HOUSE, HELENSBURG.

THE illustrations represent the exterior and interior of a house on the Clyde.

The exterior is finished with white rough-cast, the window mullions being of grey-stone, and the roof of red tiles. In the hall the woodwork is in pine stained a dark bronze-green, with a red-brick arch to the fireplace and a copper hood. The upper part of the wall is decorated, the prevailing colours being blue, green, and grey.

Mr. M. H. Baillie Scott is the architect.



New Hôtel de Ville, Sens. Plan.

BOOKS RECEIVED.

AMERICAN RENAISSANCE. By J. Wheeler Dow, architect. (New York: W. T. Cornstock. 18s.)

PRACTICAL MASONRY. By W. R. Purchase. Fifth edition. (Crosby Lockwood and Son.)

THE ARCHITECTS' AND BUILDERS' POCKET-BOOK. By Frank E. Kidder, C.E. (Chapman and Hall.)

HARD WOODS: ENGLISH AND FOREIGN. By Percy A. Wells. (Percival Marshall and Co. 6d.)

HOUSES FOR THE WORKING CLASSES. By Sydney White Cranfield, A.R.I.B.A., and Henry Ingle Potter, A.R.I.B.A. Second edition. (B. T. Batsford. 21s.)

SMOKE PREVENTION AND FUEL ECONOMY. By W. H. Booth and John B. Kershaw. (Archibald Constable. 6s.)

FIRESIDE ASTRONOMY. By D. W. Horner. (Witherby and Co. 1s. 6d.)

DÜSSELDORF UND SEINE BAUTEN. (Architekten-und Ingenieur-verein zu Düsseldorf. 20 marks.)

MEDITERRANEAN WINTER RESORTS. By Eustace A. Reynolds-Ball, F.R.G.S. (Hazell, Watson, and Viney. 6s.)

THE VENERABLE BEDE: His Life and Work. By Canon Rawnsley. (Hills and Co., Sunderland.)

The Student's Column.

NOTES ON PORTLAND CEMENT.

CHAPTER XI.—SPECIFICATIONS.

A VERY common error made by the writer of a specification is to pick out the most important clauses in other specifications and incorporate them in his own. This particularly is the case with Portland cement, the properties of which are so little understood by users generally.

The specification thus drawn up is often quite impossible to work to. Some users of cement still hold to the old idea that a heavy weight per bushel denotes a good, well-burned cement. At the same time they recognise the fact that the finer a cement is ground the greater its cementitious value; so they specify a weight of about 112 lb. per bushel, together with fine grinding, being ignorant of the fact that the finer a cement is ground the less will its weight be, the weight decreasing in direct ratio to the fineness.

It is common to find that a cement leaving no residue on a 50 by 50 mesh sieve is specified, while as much as 12 per cent. residue is allowed on a 76 by 76 mesh sieve.

With the present methods of grinding cement, to obtain a product which will all pass through a 50 by 50 mesh sieve, the residue on the 76 by 76 sieve would require to be about 3 per cent.

This, of course, means that the manufacturer requires to grind the cement much finer than that specified, a costly operation for which the consumer does not care to pay, although the value of the cement is greatly increased. An omission usually made in specifying fineness is that no particular size of wire for the sieve is given. This is more the want of uniform methods of testing, England having adopted no standard methods for cement-testing as other countries have done. It would insure the user being supplied with better ground cement if he specified the fineness on some of the finer sieves, such as 100 by 100 mesh.

It is frequently specified that a certain amount of water shall be used for gauging test pieces, but the quantity required varies with almost every sample. A manufacturer might supply a cement much finer ground than asked for in the specification (an advantage to the consumer) which could not be gauged with the amount of water specified, but which, if ground to the fineness specified, could easily be gauged with this amount of water. A writer of a specification, who must have read that cement required about 12 per cent. of water to form the necessary compounds of hydration, inserted this quantity in his specification. It would be quite impossible to gauge any "neat" cement with this amount of water, as a considerable excess is always required over the quantity actually absorbed in the hydration of the cement compounds.

Another great mistake made in specifications, and one which causes considerable friction between the manufacturer and user, is specifying laboratory tests and carrying them out under practical working conditions.

For instance, a high tensile strength may be asked for which can only be obtained by careful manipulation, but the user expects to get this strength by mixing the cement as he would do in practical working and putting the paste in the moulds with no particular care, often introducing internal strains in the mass which will cause the briquettes to break with a very light load. In the majority of complaints investigated by the author it has been his experience to find that the laboratory tests specified have been done by a labourer or unskilled operator who knows absolutely nothing of the properties of the material which he is testing.

As showing the necessity for care in drawing up cement specifications and testing, reference might be made to the German standard rules, than which there is none better, as drawn up by the Association of Cement Manufacturers.

Time of Set.—In order to ascertain the time of set, take a sample of "neat" cement and mix for three minutes with water to a stiff paste; for quick-setting cements only one minute is required. The mixture is then spread on a glass plate at a single operation, in the form of a pat 1·5 c.m. thick and tapering towards the edges. The consistency of the gauged cement should be such that a few taps on the glass plate will cause the mass, which was placed thereon by a spatula, to flow outwards towards the edges. From 27 to 30 per cent. of water is generally sufficient for this purpose. When the pats become hard enough to withstand a slight pressure with the finger nail, the cement may be considered as set.

To ascertain accurately the exact time of set, and to determine the commencement of setting (the initial set), which is of the greatest importance with quick-setting cement, as it must not be worked after it begins to set, a standard needle of 300 grammes weight is used with a diameter of 1 millimetre and a flat point. A metal mould 4 c.m. in height and 8 c.m. inside diameter is placed upon a glass plate and filled with gauged cement of the above consistency, and tested at intervals with the needle. The moment when the needle fails to penetrate the entire depth of the mass is considered as the commencement of setting. The time which elapses between the gauging and the moment at which the needle leaves no visible impression on the surface of the pat is the time taken to set. In order to obtain uniform results in determining the setting of cement, it is of importance to carry out the test at a mean temperature of both air and water of 15° to 18° C., as the setting is influenced by the temperature of the air and of the water used in gauging, a high temperature quickens the setting, a low temperature, on the other hand, retards it.

Slow-setting cements should not materially increase in temperature during setting, whereas with quick-setting cements a marked increase is permissible. Cement is rendered slower setting by long storage, and its tensile strength is increased if kept in a dry place free from draughts of moist air. The opinion frequently prevailing that cement deteriorates by long warehousing is, therefore, an erroneous one, and contract clauses which specify the use of fresh cement only should be discarded.

Soundness.—Portland cement should be constant in volume. The decisive test of this property should be that a pat of "neat" cement made on a glass plate and kept in a damp atmosphere for twenty-four hours, and afterwards immersed in water, must not show any signs of warping or cracking at the edges, even after the lapse of a considerable period.

In carrying out this test the pat prepared for determining the time of set should be placed under water at the end of twenty-four hours in the case of slow-setting cements, but in any case only after it has become set. This may be done much sooner in the case of quick-setting cements. The pats, especially of slow-setting cements, must be well protected from draughts and the direct rays of the sun until after they have become set. The best method is to place them in a closed box, or cover them with damp cloths. Hair-cracks which are caused by shrinkage due to rapid drying will thus be avoided. These generally appear in the centre of the pat, and are often mistaken by the uninitiated for cracks caused by "blowing." If the cement shows any crumbling, or cracks are visible during the process of hardening while under water, this is a certain indication of the "blowing" of the cement. That is to say, the cement becomes cracked in consequence of an increase of volume, and a gradual disruption of the particles previously connected takes place, which may ultimately lead to the total destruction of the mass. These symptoms of expansion usually appear within three days, but an observation extending over twenty-eight days is always sufficient.

Fineness of Grinding.—Portland cement must be ground so fine that not more than 10 per cent. of residue is left after a sample has been passed through a wire sieve of 900 meshes to the sq. c.m. The thickness of the wire of the sieve should be equal to half the width of the opening of the mesh.

To carry out the test, 100 grammes of the cement must be used for each determination.

The fineness of grinding of cement is of paramount importance, because as sand is nearly always used with it, and sometimes in large proportions, the cohesive strength of the mortar is greater in proportion to the fineness of the cement, inasmuch as under those conditions more particles of the cement come into action. It would, therefore, seem advisable that the fineness of the powder should be uniformly tested by the use of a fine sieve of above-mentioned description. It would, however, be erroneous to judge of the quality of the cement by its fineness only, as inferior underburned cements are more frequently found to be finely ground than good hard-burned ones. The latter kind, though coarser, will generally show a higher cementitious value than the former. When cement is used mixed with lime it is advisable to employ hard-burned and extremely finely-ground cement; the cost of production is higher, but will be counterbalanced by a materially improved quality of mortar.

Tests for Strength.—The cementitious value of Portland cement should be determined by testing a mixture of cement and sand.

The testing shall be carried out in a uniform manner, both as to its tensile strength and resistance to crushing. The test blocks shall be of uniform shape and section, and the same apparatus used in every case. It is advisable at the same time to ascertain the strength of the neat cement. The tests for tensile strength should be carried out with briquettes having a sectional area of 5 sq. c.m. at the point of fracture. In the crushing test cubes should be used having sides of 50 sq. c.m. in area. Slow-setting cement, when tested with three parts by weight of standard sand to one part by weight of cement, must attain after twenty-eight days (that is to say, one day in air and twenty-seven days in water) a tensile strength of at least 16 kilos. per sq. c.m. The crushing strength must be at least 160 kilos. per sq. c.m.

With quick-setting cements, the tensile strength at twenty-eight days is generally less than that above mentioned. The time of set should therefore be stated when specifying the strength required.

It is absolutely necessary to use a large proportion of sand in testing, especially when comparing several cements, as the power of cementing sand together varies with different cements, and in practice this is the most important feature. The most suitable proportion for this purpose is held to be three parts by weight of sand to one part of cement, since with that proportion the cementitious value of various kinds of cement becomes sufficiently developed.

Cement showing a greater relative tensile strength than crushing strength often admits of the addition of a larger proportion of sand, and in consideration of this property, as well as for its greater strength with the usual amount of sand, should command a higher price.

The standard test of strength is the crushing test at twenty-eight days, it being impossible to accurately determine the cementing power when comparing different kinds of cement in a shorter period of time. Thus, for instance, the strength of various samples of cement may be alike after twenty-eight days, whereas there may be a material difference between them after only seven days.

The tensile test at twenty-eight days serves as a controlling test of cement delivered. If, however, a decision is to be arrived at after seven days it may be made with a given sample, after the ratio of tensile strength between the seven days and twenty-eight days has been determined.

This preliminary test may also be carried out with "neat" cement after having ascertained the relation between the strength of the "neat" cement at twenty-eight days and that mixed with three parts of sand.

It would be of special value in cases where

circumstances will admit, to further extend the hardening period of the test blocks, in order to ascertain the behaviour of different kinds of cements at long dates.

To arrive at consistent results, sand of the same size of grain and of the same kind should always be used. This normal sand is obtained by washing pure quartz sand as clean as possible, drying it and passing it through a sieve of 60 holes per sq. c.m. in order to remove the coarser particles; the sand thus obtained is again passed through a sieve of 120 holes per sq. c.m. to free it from the finer particles. The thickness of the wire of the sieves should be 0·38 and 0·32 c.m. respectively. Since all quartz sands do not always give the same results when similarly treated it should be ascertained whether the normal sand employed will give results consistent with the normal sand supplied for testing purposes under the direction of the Committee of the Association of Cement Manufacturers, and which is used at the Royal Testing Station of Charlottenburg.

As in testing the same cement, a great deal depends on consistent results being obtained at different places, the subjoined rules should be strictly adhered to. In order to secure accurate results at least ten tests should be made at each date.

Tensile Tests.—The briquettes can be made either by hand or by machine.

Hand Made.

On a metal or thick glass plate, forming a base for the briquettes, place five small sheets of filter paper dipped in water, and on each sheet a mould dipped in water. Weigh off 250 grammes cement and 750 grammes dry normal sand, mixing both well together in a vessel. Add 100 ccs. of pure fresh water, working the whole mass well together for five minutes. With the mortar thus produced fill the moulds at one operation and heaped up in the centre; by means of an iron spatula, having a surface of 8 c.m. by 5 c.m. and 35 c.m. long, and weighing about 250 grammes, beat down the projecting mortar, first gently on the sides, then harder and harder till it becomes plastic and water appears on the surface. A continued beating of about one minute per mould is absolutely necessary to attain this object. Adding mortar to that already in the mould is not advisable, as briquettes of the same cement made at different testing stations should be of equal density throughout. Scrape off with a knife any mortar projecting above the top of the mould, smoothing the face with the same instrument; loose the mould carefully from the briquette and place the latter in a covered box lined with zinc, to avoid unequal drying owing to variations of temperature. Twenty-four hours after making the briquettes they should be placed under water, in which they must remain quite submerged during the whole period of hardening.

Machine Made.

After the mould, fitted with the filling-box, has been screwed on to the bedplate by two adjusting screws, 180 grammes of the mortar, made as just explained, are placed into the mould for each briquette and the iron core put in; 150 strokes are then given to the core by Böhme's hammer apparatus, with the hammer weighing 2 kilos.

By strictly observing the above instruction hand and machine tests give fairly uniform results. In disputed cases, however, machine-made blocks are considered the standard.

"*Neat*" *Tests.*—Rub the inside of the moulds with a little oil, placing them on a metallic or glass plate (without filter paper), then weigh off 1,000 grammes cement, add 200 ccs. water, and work the mass for five minutes (a pestle is recommended). Fill the moulds, heaping full, and proceed as explained for sand briquettes. The moulds, however, must not be removed till the cement is sufficiently hardened.

As in beating in "neat" cement, briquettes of equal density are required, a very fine or very quick-setting cement will require a correspondingly larger quantity of water. The amount of water used should always be mentioned in giving the results of such tests.

Treatment of Specimens in Testing.—All test pieces must be tested immediately after being taken out of water. Since the speed at which the strain is applied has an influence on the results, in testing for tensile strength the increase of weight shall be at the rate of 100 grammes per second.

In testing for crushing strength, in order to get uniform results, the pressure should always be applied on the side surfaces of the cube and not on the bottom or trowelled surfaces.

COURT OF COMMON COUNCIL.

THE usual fortnightly Court of Common Council was held on Thursday last week at the Guildhall, E.C., the Lord Mayor presiding.

Women Sanitary Inspectors.—On the recommendation of the Sanitary Committee it was agreed to appoint another woman sanitary inspector (second-class) at a commencing salary of 100*l.* per annum. The Committee were authorised to advertise for candidates.

The Salaries of the Medical Officer of Health and the Sanitary Inspectors.—Some discussion took place on a recommendation by the Sanitary Committee that no action be taken in the matter, referred to the Committee for consideration, of applying to the London County Council for payment of half the salaries of the Medical Officer of Health and the Sanitary Inspectors.

Mr. John Harris moved as an amendment that the report be not adopted, but that it be referred to the Committee to make application to the London County Council as at first suggested. This was carried.

International Congress of Drainage and House Sanitation.—It was agreed to appoint representatives to attend the first Congress of Drainage and House Sanitation to be held in Paris, from November 1 to 8 next.

Crematorium, City of London Cemetery.—The Sanitary Committee submitted a certificate from the engineer that the crematorium at Little Ilford had been built in accordance with the plans approved by the Secretary of State for the Home Department in October, 1902. It was reported that the Medical Officer of Health, Dr. Collingridge, and the Police Surgeon, Dr. Gordon Brown, had offered to act as Medical Referee and Deputy Medical Referee in hon. capacities. The appointments were agreed to, and the Committee were authorised to make the necessary arrangements for the opening of the crematorium.

Streets Committee.—A lengthy report was submitted by the Streets Committee recommending the Court to consent to a large number of minor building operations and additions to buildings in the City. Among those to which consent was given was an application by the London Hydraulic Power Company to extend their mains in Tower-hill, Cooper-row, Lloyd's-avenue, and portions of Crutched-friars and John-street.

The Spread of Disease by Vagrants.—A letter from the London County Council asking the Corporation to appoint a member, together with the Medical Officer of Health, to attend the forthcoming conference on this question, was referred to the Sanitary Committee.

The Resignation of the City Surveyor.—The Officers and Clerks Committee submitted a report, in which they dealt with the letter from Mr. Andrew Murray, the City Surveyor, with reference to his retirement. The letter had been referred to the Committee with instructions to consider and report upon the nature, duties, and emoluments of the office, and also as to whether there should be any rearrangement of the duties at present discharged by the Engineer.

The Committee submitted a "List of Duties of City Surveyor," with proposed additions italicised. Paragraph 16 of this was as follows:—

16. To prepare designs, with preliminary sketches or drawings, plans, specifications, estimates, and working drawings as may be required (*subject to Clause* 19); to instruct the Quantity Surveyor who may be appointed to take out quantities, and to take all necessary steps to enable tenders to be obtained from contractors; to examine the materials intended to be used in all buildings to be erected or in any way altered or added to by the Corporation, and to permit the use of such only as are the best of their respective kinds; to superintend and direct the execution of all such works; to see that they are done in a workmanlike manner, and in conformity with the respective contracts and the Acts of Parliament and by-laws of local authorities for the regulating of buildings; to take the extras and omissions upon all contracts (*no extras or additions being allowed, for which there is no previous order in writing from the City Surveyor*), and make all necessary certificates thereunder; and generally to report thereon from time to time upon the progress of the works and upon proposed variations or otherwise.

The Clause 19 referred to read:—

19. *These duties do not refer to or embrace the designing and execution of any work or works of an architectural character.*

The Committee recommended:—

i. That the offices of the City Surveyor and Engineer should not be amalgamated.

ii. That a City Surveyor be appointed.

iii. That the salary of the office be 1,000*l.* per annum, rising, at the discretion of the Court, to a maximum of 1,500*l.* per annum.

iv. That the age of candidates shall not exceed fifty years on the day of election.

v. That the position be advertised.

vi. That it be referred back to this Committee to receive applications and select five candidates for final election by the Court.

Mr. Deputy Douglas Matthews moved that the report be referred back for further consideration; particularly with regard to the practicability of eliminating so many of the duties of the Surveyor as appertained to the valuation and letting of land, and matters which were generally dealt with by an auctioneer, and also the appointment of officers for those duties. This amendment was lost on a show of hands.

Mr. Algen remarked that with a salary at so low a figure the best men would not come forward. He would move as an amendment that the salary should commence at 1,500*l.* per annum, as nothing under that sum should be offered by the City.

The Town Clerk pointed out that such a motion would involve the suspension of one of the standing orders, and ultimately the matter was adjourned, Mr. Cooper giving notice of motion that the age limit should be placed at forty-five years.

OBITUARY.

A. BARTHOLDI.—Auguste Bartholdi, the sculptor, to whose death reference was made last week in our columns, was born at Colmar in 1834. He began life as an architect, and subsequently came to Paris to study painting in the atelier of Ary Scheffer; but soon turned his attention to sculpture, and became a pupil of Soitoux. In 1853 he exhibited at the Salon a group entitled "Le Bon Samaritain"; and, two years afterwards a large statue of General Rapp. He subsequently executed a fountain for Bordeaux, and a statue of Martin Schongauer for the cloister of the museum at Colmar. We owe also to him the figure of "Douleur" which adorns the tomb of Nefftzer, and the statue of Champollion for the Collège de France. But his renown dates from the time when he produced the colossal statue of "Liberté Eclairant le Monde" which stands at the entrance of New York harbour. We should mention also among his works the commemorative monument of Basle; the group of Lafayette and Washington erected in the Place des Etats-Unis; the monument to Gambetta at Sèvres; the monumental fountain at Lyons; the monument to Sergeant Hoff which is to be placed in Père Lachaise; and the models for the monument to the aeronauts of the Siege of Paris and for that commemorating the three sieges of Belfort. It will be remembered that Bartholdi brought an action against the Corporation of Marseilles for not having carried out his design for the Palace of Longchamp, and given the preference to the work of Esperandieu. This hard-working artist obtained a good many honours at the Salon exhibitions, and was promoted successively to the grades of Chevalier, Officier, and Commandeur in the Legion of Honour.

Mr. TAIT.—We have to announce the death, in his seventy-third year, of Mr. William Nairne Tait, of Glasgow, who practised during a long period as an architect in that city. He served his articles in the offices of Messrs. A. and A. Heiton, of Perth. Messrs. Tait and Mitchell, of Glasgow, made the plans and designs six years ago for the Institute in the West High-street, Forfar, founded by Miss Meffan for purposes of a lecture hall, free library, and museum.

MR. RIDLEY.—Mr. Matthew Ridley, Superintendent of the Government Horticultural Gardens at Lucknow, died at Lucknow on September 17, aged fifty-six years. He was about to retire from that position, which he had occupied during some thirty years past. Mr. Ridley received his earlier training at Kew; his service in India as a landscape gardener has been marked by the great improvements which he carried out in the public grounds and parks at Cawnpore and Agra, including the gardens around the Taj Mahal; as well as at Lucknow, more especially in the vicinity of the Residency and other places of historical interest in that city which are associated with the story of the Mutiny. Mr. Ridley traced his descent from the Bishop of London who was burned at the stake in 1555.

MR. J. LEWIS THOMAS.—We regret to have to record the sudden death of Mr. James Lewis Thomas, F.S.A., F.R.G.S., late Chief Surveyor to the War Office, which took place at his residence, 26, Gloucester-street, Warwick-square, on the 4th inst., in his seventy-ninth year. Mr. Thomas was educated at Christ College, Brecon, and studied under Sir Charles Barry. He had a long association with the War Office, serving abroad in his

early days. In 1855, he was appointed Deputy-Surveyor to the War Department, and in 1882 promoted to be Chief Surveyor, which office he held till 1890, when he retired. The distinction of hon. A.R.I.B.A. was conferred upon him soon afterwards. He designed the Royal Herbert Hospital, Woolwich, and among other notable buildings of which he was the architect is the Royal Victoria Hospital at Netley, the drawing of which he exhibited to Queen Victoria on the occasion of Her Majesty laying the foundation-stone in 1856, being at the same time presented to Her Majesty; he also designed the Herbert Convalescent Home at Bournemouth, erected to the memory of the late Lord Herbert of Lea. Mr. Thomas was a fellow of several learned societies, also a distinguished freemason; he was Vice-Treasurer of the Most Hon. and Loyal Society of Ancient Britons, which supports the Welsh girls' school at Ashford, and was a brother of the eminent Breconshire sculptor, the late Mr. J. Evan Thomas, J.P., D.L. He was interred in Brompton Cemetery on the 8th inst.

GENERAL BUILDING NEWS.

CHURCH, CHANDLER'S FORD, HANTS.—The Bishop of Winchester dedicated a few days ago the new Church of St. Boniface, which has been erected at Chandler's Ford. The building is of red brick, with Bath stone dressings. At present only a portion of the scheme has been carried out. This consists of a nave and a small portion of the chancel, which forms a temporary sanctuary. On the foundations of the north transept a temporary vestry has been erected of corrugated iron. The roof of the nave is timbered and surmounted by a bell turret. The ceiling is barrel shaped, and divided into panels, with a gilded boss at each intersection. The walls are plastered inside, and the windows are all fitted with leaded lights, filled with Cathedral tinted glass. The floor of the nave is of stone, with wood blocks under the seats. The floor of the temporary sanctuary is raised 6 in. above that of the nave, and is composed of black and white marble. The building is heated by a hot-air system carried out by Messrs. Haden and Son, of Trowbridge. The doors are of oak, fumigated and polished. The seats will eventually be of pitch-pine, but in the meantime seats from the old church will be used. The font, pulpit, lectern, and organ have been brought from the existing church. The remainder of the scheme consists of the erection of a parsonage, the ground for which has been reserved on the south side, the chancel, north and south transepts, but this will only be carried out when funds permit. The work of erecting the church has been entrusted to Messrs. Parnell and Sons, of Rugby. The architect was Mr. G. F. Bodley, R.A., of London, and Mr. C. Woodley acted as clerk of the works and foreman.

ROMAN CATHOLIC CHURCH, WIMBLEDON.—The laying of the first stone of the new Roman Catholic church, which is to stand at the corner of Merton and Latimer roads, and which is to be dedicated to St. Winefride, a British Saint of the VIIth century, whose shrine is at Holywell, took place recently. The plan comprises a wide nave with narrow processional aisles on either side, a sanctuary raised several steps above the nave level, flanked on one side by a side chapel, and on the other by priests' and boys' sacristies, a transept on the north side, with a porch adjoining, giving access to that portion of the church, and a baptistry at the north-west corner. The main entrance will be by a deeply-recessed arched doorway at the west end, and there will be also another entrance porch at the south-west corner. The total length will be 112 ft., and the width of the nave 33 ft. Accommodation will be provided for between 600 and 700 persons, and the contract is for 6,375*l*. The architect is Mr. F. A. Walters, F.S.A., of Westminster, and Messrs. James Smith and Sons, of Norwood, are the builders. The latter are represented by Mr Arnold, clerk of the works, and Mr. Bailey, foreman of the works.

CHURCH OF ST. ANNE'S, BRISTOL.—The foundation-stone of the new Church of St. Anne's was laid by the Bishop of Bath and Wells on the 8th inst. The church will consist of a nave, north and south aisles, north and south transepts, chancel, and morning chapel, and the accommodation will be for 795. The whole of the building will not be proceeded with at first, but it is intended to construct the nave, aisles, and transepts, which will provide accommodation for about 700 people, and a temporary chancel will be erected at the east end of the church, and a temporary vestry at the north-east. The estimated cost of the whole building is 5,800*l*., and of the portions that will be first built about 3,000*l*. The structure is to be built of pennant stone, with freestone facings, and the interior is to be freestone work. The floors will be of oak blocks over the sitting areas, and of terrazza cement paving for the walking ways and chancel. The roof is to be of red Broseley tiles, surmounted by a ventilating flèche on timber framing covered with sheet lead. The heating of the building will be by low-pressure hot water. Carved and moulded screens will divide the chancel from the morning chapel, and the vestry and the north transept from the choir vestry. Chairs will be used for the sitting accommodation, except for the choir stalls. The pulpit will be of stone, carved and moulded. A porch will be placed outside the north entrance, and an interior porch at the west entrance, divided from the nave by a moulded partition of timber work. The east end of the chancel is to be formed as a portion of a regular octagon, and will be lighted by three open tracery windows. The architect is Mr. Henry M. Bennett, and the builders Messrs. E. Walters and Son.

CHURCH RESTORATION, GREAT STURTON.—The Bishop of Lincoln (Dr. King) reopened, on the 4th inst., after partial restoration, the village church of All Saints, Great Sturton, near Horncastle. It was found that the church, which dates back from the XIIth century, needed thorough restoration, being almost a ruin, but as this was impossible at the present juncture, it was decided to confine the work of restoration to the chancel arch and chancel. The architect in charge of the work was Mr. J. T. Micklethwaite, of London, and the contractor, Mr. Frank Bell, of Horncastle.

WEST HAM PARISH CHURCH.—The tower of the parish church of West Ham is in need of repair. It is a square embattled stone tower, 78 ft. in height to the top of the parapet, on which there is a turret 10 ft. high. It has been carefully surveyed by Mr. W. Weir, architect of the Society for the Protection of Ancient Buildings, who reported that, while the interior is in good condition and only needs to be kept weather-tight, the face of the tower is gradually perishing and many of the stones are loose enough to be dangerous.

ST. PAUL'S UNITED FREE CHURCH, CAMBUSLANG, N.B.—This church, the memorial-stones of which have just been laid, is situated between Bushyhill-street and Hamilton-drive. It is built of red sandstone, from Locharbriggs Quarry, in Dumfriesshire. The work is rockfaced rubble masonry. The building is of the Gothic style, erected from the designs by Mr. Alexander Petrie, Glasgow. The ground floor contains, besides a large hall, several classrooms, giving accommodation in all for 400 persons, also vestry, ladies' room, cooking kitchen, etc. Above the ground floor is the church and gallery (horse-shoe shaped), with sittings for 650, having an entrance door and staircase from both streets into a spacious lobby, the floor of which will be laid with marble mosaic. The pulpit platform is placed on the east of the church, with an organ recess at the back. The south or principal front faces Hamilton-drive, and has a porch projecting from the main wall of church. Above the porch is a large gable, having lancet-pointed windows and moulded niche between surmounted by a moulded cross. The other windows have stone mullions and transomes. The north-west and east fronts are treated in a simpler manner, being less exposed, and at some distance from either street. The interior of the church is divided into nave and aisles, the roof timbers being supported on columns having pointed arches between running east and west. The ceiling will be divided into panels having wood rib mouldings between the arches resting on corbels on the walls. It is estimated that the total cost of church and hall will not exceed 5,000*l*.

WESLEYAN CHURCH, BEIGHTON.—At Beighton recently the memorial-stone was laid of a new Wesleyan church. The new building will provide accommodation for 350 worshippers. It is in the Gothic style, erected of Dunford-bridge stone, with Wingerworth stone dressings. The windows are of stained glass with leaded lights. At the rear are two vestries, for use by the minister and the choir, for whom accommodation is provided in a small chancel. instead of the usual gallery. At the sides of the chancel are the pulpit and the organ. The heating chamber is in the basement. The cost of the chapel is estimated at about 2,000*l*., and the contract has been let to Messrs. Lund and Swann, of Eckington. Mr. W. Cecil Jackson, of Chesterfield, is the architect.

WESLEYAN METHODIST CHURCH, LONG EATON.—A new Wesleyan church has just been opened at Long Eaton. It is built to seat about 700 persons, and has a tower at the south-east corner. The main entrance to the chapel is at the base of the tower, and leads into lobbies, which afford entrance to the chapel itself. There is a central aisle, with pews on either side, and for convenience there are also side aisles to the same pews. The chancel is raised six steps above the level of the nave floor, with a pulpit on the right side and a dwarf screen on the left. The communion table is raised on three more steps. The back of the table is erected with alabaster, green, black, and yellow marble. The choir seats, the panelling 12 ft. high, and pulpit are in oak, with a traceried screen dividing the choir seats from the organ chamber. The length of the building is 150 ft., and the width 40 ft., and it has been erected at a total cost, with the school extension scheme included, of 11,000*l*. The contractors for the building are Messrs. Pask and Thorpe, Nottingham, with the following subcontractors:—Joiner, Mr. Appleby, Nottingham; heating, Messrs. Danks and Co., Nottingham; ventilating, Messrs. Ashwell and Nesbit, Leicester; marble mason, Mr. Gibson, Nottingham; brickwork, Mr. G. Young, Long Eaton, while the whole of the work has been executed from the drawings of Messrs. Brewill and Baily, Nottingham.

NEW BAPTIST CHURCH, SLOUGH.—The foundation-stones were recently laid of a new Baptist church at Slough. The building will be constructed of brick, with stone dressings, and will be 50 ft. long and 42 ft. wide. The plan provides for galleries on three sides with vestibules, a rostrum, and organ chamber, and two vestries which can be used as classrooms in connexion with the Sunday school. Accommodation is to be provided for a mixed congregation of 700, the seats to be of pitch-pine, and arranged in circular form with side aisles. The windows will be of stone frame work, with tinted glass. Provision is made for ventilation, and the heating will be by means of hot-water apparatus, constructed beneath one of the vestries, whilst the lighting will be with the electric light. The work is being carried out, from the plans of Mr. R. W. Moore, Bexhill, by Mr. H. Flint, of High Wycombe, at a cost of 3,867*l*.

RENOVATION OF CONGREGATIONAL CHURCH, GRANGE PARK, STRATFORD.—The Grange Park-road Congregational Church has been renovated. The work has been carried out by Mr. Clark, from the directions and plans of Mr. J. W. Dunford, architect, of Walthamstow.

NEW CONGREGATIONAL CHURCH, BOURNEMOUTH.—The foundation-stones were recently laid of the new Congregational church in Charminster-road, which is being built by Messrs. George Shears and Sons, at a cost of about 4,500*l*., from the designs of Messrs. Lawson and Reynolds. There will be seating accommodation on the ground floor for 450 people, and provision for 250 in the galleries, making a total of 700.

WESLEYAN CHAPEL, LONGWOOD, YORKSHIRE.—A new Wesleyan chapel has just been opened at Longwood. It is in the decorated Gothic style, with the roof half open, and is faced with Elland Edge wall stones. The principal features in the front elevation are a doorway entrance, flanked with projecting pilasters and three two-light traceried windows. The church is 54 ft. 8 in. long and 30 ft. 6 in. wide, with transepts 11 ft. 6 in. deep, and will accommodate 700 persons. The body of the building is divided by two aisles, which communicate with a vestibule at the east end of the church. There are three entrances, one for the ground floor and two for the galleries, and also a side door for the use of the minister, choir, and scholars. There is a gallery on three sides containing two rows of pews. The internal woodwork is of pitch-pine, and varnished. The chapel is fitted throughout with open pews; the ceiling is boarded, and octagonal in shape; the windows are glazed with leaded lights, and the church is heated by hot water on the low-pressure system, and lighted by electricity. There are two vestries on the ground floor, and two classrooms in the basement, 32 ft. 5 in. by 20 ft., and 31 ft. 5 in. by 21 ft. 6 in. respectively, a bellows-room, store-room, and underneath the latter is the heating apparatus room. There are two entrances to the basement and two flights of stairs leading to the ground floor. The church has cost 8,000*l*. The plans were prepared by Mr. Joseph Berry, architect, Huddersfield, and the works have been carried out under his supervision. The following are the contractors:—Masons, Messrs. T. Bottomley and Sons, Lindley; joiners, Messrs. Wood Brothers, Huddersfield; plumber, Mr. Samuel Hale, Huddersfield; plasterers, Messrs. J. Robinson and Son, Marsh, Huddersfield; painter, Mr. Albert Wrigley, Longwood; slaters, Messrs. Thomas Allison, Ltd., Milnsbridge; ironwork, Messrs. Calvert and Co., Folly Hall, Huddersfield; electric lighting, Mr. Thomas Armitage, Huddersfield; heating engineers, Messrs. Tomlinson and Milan, Huddersfield; concreter, Mr. J. E. Dyson, Lindley, Huddersfield; gates and railing, Mr. T. H. Raynor, Huddersfield.

NEW WESLEYAN CHAPEL, LONGWICK, BUCKINGHAMSHIRE.—The opening of a new Wesleyan chapel at Longwick took place a short time ago. The building is of red brick, and will seat 120 persons. A couple of Boyle's ventilators are fixed in the roof, also several in the walls. The estimated cost is 500*l.*, and the architect was Mr. F. Taylor.

SCHOOL, SHIPMAN-ROAD, CUSTOM HOUSE.—The Shipman-road Council School was formally opened recently by the Deputy-Mayor. The hall is placed in the centre of the building on each floor at right-angles to the main axis of the building, and with a corridor 8 ft. wide to the right and left. Classrooms are grouped on each side of the corridor. The cloak-rooms and teachers' rooms are arranged at the end of the corridors, with staircases and entrances at the angles of the building. The school, which stands upon a site having an area of 1½ acres, consists of three floors. In each department there are eight classrooms, varying in capacity from forty-five to sixty school places. The heating of the school throughout is by low-pressure hot-water radiators, and provision is made for ventilation without mechanical aids. The contract for the building amounts to 25,763*l.*, and has been carried out by Messrs. W. Gregar and Son, of Stratford, from the designs and under the supervision of Mr. William Jacques (Architect to the Committee).

NEW COUNCIL SCHOOL, LEYTONSTONE.—The new Council school in Norlington-road was opened a short time ago. The site of the structure has an area of 1½ acres, with a long frontage to Norlington-road, and a shorter return frontage to Pretoria-road. The main building of the school is arranged for three departments on three floors, each department occupying one floor. The infants' department, on the ground floor, has ten classrooms, with seating capacity varying from forty-four in the smaller rooms to sixty in the larger ones. Special provision has been made for very young children. The girls' department, on the first floor, and the boys' department, on the second floor, have eight classrooms each, the capacity per room varying from fifty to seventy school places. The total capacity for which the school is designed is:—Boys, 500; girls, 480; infants, 532; total, 1,512. Each department has, in addition, an assembly hall. The contract for the works amounts to 26,337*l.*, and has been carried out by Mr. F. J. Coxhead, builder, of Leytonstone; electric lighting by Messrs. Allin and Son; hot-water heating by the Lancashire Heating Company; terrazzo paving by the Mosaic Manufacturing Company; situ concrete paving by the Atlas Stone Company; to the designs and under the supervision of Mr. William Jacques, Architect to the Education Committee; Mr. G. W. Ramplin having carried out the duties of clerk of the works.

CHURCH HALL, STOKE NEWINGTON.—The foundation-stone of St. Andrew's Hall, Bethune-road, in connexion with St. Andrew's Church, Stoke Newington, has just been laid. The hall has been erected by Messrs. Sheffield Brothers, and the stonework and masonry has been carried out by Mr. C. W. Walters, of Lower Edmonton. Mr. Percy D. Smith is the architect. The dimensions of the hall are as follows:—The main hall (inside), 70 ft. by 36 ft. The front portion consists of a ladies' and gentlemen's cloak-room, a vestibule, lavatories, offices, in all 47 ft. by 17 ft. In the rear portion are ladies' and gentlemen's retiring-rooms, lavatories, offices, and a fireproof staircase leading into the hall above, which is 38 ft. by 20 ft. The main hall has an open-timbered composite roof, and the floor will be of polished maple.

TOWN HALL EXTENSION, KELSO.—At a meeting of Kelso Town Council on the 3rd inst. plans by Mr. Swanston, architect, of the proposed renovation and alteration of the Town Hall buildings were submitted. The total cost of the improvements, which include provision for a board-room and offices on the basement, which is at present an open space, also the renovation of the main hall on the second floor and the exterior facing up of the fabric, is estimated at 2,385*l.*

POORHOUSE, LEITH.—At a Dean of Guild Court held at Leith on the 3rd inst. warrant was granted to Leith Parish Council for the erection of the new poorhouse at Seafield, on the amendment of the plans to meet the Master of Works report. The site on which the poorhouse is to be erected is at the eastern extremity of the burgh, and extends to about 12¾ acres. Accommodation will be provided for 659 inmates—364 from the main house, 203 in the infirmary, sixty-eight in the children's home, twelve in the married couples' quarters, and twelve in the probationary wards. There will also be accommodation for the members of the staff. The general division of the site aims at preserving the higher or south-westerly portion for the sick inmates, the children, the officials, and the most deserving class of healthy inmates, while the undesirable class of healthy inmates and the labour department will be confined to the north-easterly portion of the site, the main house forming a screen between these divisions. The main house will be in the form of the letter H, the administrative department being in the connecting block, and the inmates' accommodation in the wings. The infirmary will consist of a centre block with four radiating wings, containing wards, and will include an operating-room and quarters for a resident medical officer and for a staff of nurses. In the phthisical block there will be accommodation for twenty-four patients. The plans are by Mr. J. M. Johnston, architect, Leith.

PREMISES FOR ST. GILES'S CHRISTIAN MISSION.—The foundation-stones of the new premises being constructed by the London County Council for the St. Giles's Christian Mission in place of the old mission buildings demolished for the purposes of the Holborn to Strand improvement were laid on the 5th inst. The new buildings, which adjoin the site of the old premises in Little Wild-street, Drury-lane, are being erected from the designs of Messrs. Runtz and Ford, and consist of a chapel capable of seating 800 to 1,000 persons, with a schoolroom beneath.

LOUGHBOROUGH ELECTRIC LIGHTING STATION.—Although two or three weeks will probably elapse before Loughborough is supplied with electric light from a municipal source, the erection of the generating station and the laying down of the plant is rapidly approaching completion. The block comprises boiler-house, engine-room, battery-room, condensing-pit, and offices. The offices include the borough electrical engineer's room, general office, testing-room, workshop, and stores. The chimney shaft is 140 ft. in height. The buildings have been erected by Mr. A. Faulks from plans prepared by Mr. A. E. King. Mr. G. H. Saunders has acted as engineer's clerk of the works.

CONSTITUTIONAL CLUB, GAINSBOROUGH.—A new Conservative and Unionist club has been erected at Gainsborough from the plans of Messrs. Eyre and Southall, Retford and Gainsborough, architects.

BUSINESS PREMISES, BRISTOL.—New premises have been erected for Messrs. Lennards in White Ladies-road, Bristol. The total length of the frontage is 120 ft., and the warehouse of five stories reaches a height of 55 ft. Monks Park Bath stone has been used throughout. Messrs. R. Wilkins and Son, of Bristol, were the general contractors. Messrs. Dawnay and Co., of London, supplied the steel work, and Mr. Smith, of Montpelier, undertook the carving. The premises were designed by Mr. H. Dare Bryan, architect.

EXTENSION OF THE VICTORIA HOSPITAL, DUNDEE.—A new wing of two stories, with the central portion raised to the height of three stories, is to be added to this hospital. The extension will abut on the west end of the existing buildings. On the ground floor the plan provides for a ward of ten beds. Adjoining is lavatory and bathroom accommodation and a ward kitchen. Towards the front is a dining-room for the patients. On the other side of the main entrance is an open verandah, which will form a resting-place for the sick. Adjoining is the nurses' sitting-room, and to the back is accommodation for napery and clothing. The first floor is similarly planned, on it also being a ward capable of accommodating ten patients. In the second story above the vestibule are two small wards of two beds each. The plans have been prepared by Mr. James Findlay, architect.

FREE LIBRARY AND LECTURE HALL, WORKINGTON.—The Workington new free library and Carnegie lecture hall, for which the Borough received 7,500*l.* from Mr. Carnegie, was opened on the 6th inst. by the Mayor. The building, after the Queen Anne style, has cost altogether 6,954*l.*, exclusive of furnishing. The architect is Mr. Mellon, of York.

NEW OPERATING THEATRE, QUEEN-SQUARE.—The Duchess of Albany attended at Queen-square on Saturday afternoon to open a new operating theatre at the National Hospital for the Paralysed and Epileptic. Mr. R. Langton Cole is the architect of the new building.

STANLEY HOSPITAL, LIVERPOOL.—On the 7th inst. two additions to the Stanley Hospital were opened; a new operating theatre, with rooms *en suite*, comprising anæsthetic and preparation rooms, and a vestibule formed for the isolation of theatre, and the withdrawal of patients. The several door openings are fitted with steel doors made by Milner's Safe Company, the window casements from the Crittall Company, the sinks and basins supplied by Messrs. Twyfords and Shanks. All the walls are furnished in Parian cement on a Portland cement ground, the surface being painted with the Torbay Company's paint. The pavements throughout are terrazzo. The other enlargement is an addition to the out-patients' department, and consists of a minor-operation theatre with male and female recovery-rooms in direct communication with the theatre; new male and female dressing-rooms, and a surgeons' consulting-room, each approached from a central wide passage. The contractors are Messrs. Henshaw and Sons, and Messrs. Tomkinson and Co., respectively. The architect is Mr. Alfred Culshaw, of Liverpool.

BATHS FOR CHELSEA.—The Baths Committee of Chelsea Borough Council reported on Tuesday having adopted a scheme for the rebuilding of the public baths. The main items are:—Building and engineering works, 21,000*l.*; architects' and quantity surveyor's fees and clerk of works' salary, 1,530*l.*; lighting, 1,000*l.*; with the following extras—second swimming bath, 6,650*l.*; Turkish bath, 3,500*l.*; additional cost (over the 1,000*l.* already mentioned) for installing electric light, 1,600*l.*; artesian well and storage tank, 3,520*l.*; additional architects' and quantity surveyor's fees and clerk of works' salary, 1,094*l.* The Committee have further decided (subject to the usual sanction) to appoint Messrs. Wills and Anderson the architects to carry out the scheme, and Mr. F. H. A. Hardcastle as quantity surveyor.

NEW CO-OPERATIVE PREMISES, BURNHOPE, DURHAM.—The new co-operative premises erected at Burnhope were opened on the 1st inst. The premises have been built from the designs of Mr. W. Forster, architect, at a cost of about 8,000*l.*

PUBLIC HALL, FOUR OAKS, BIRMINGHAM.—The Four Oaks and Hill Public Hall, which has been erected at Meres Green, at a cost of nearly 600*l.*, was opened on the 1st inst. The building, which is situated on a site in the centre of the Hill Ward, consists of an assembly-room, 50 ft. by 25 ft., to accommodate 250 persons, a retiring-room, and the usual offices. It is built of Oldbury bricks and covered with Hartshill tiles. The whole building is lighted by both electricity and gas. The contract amounted to 455*l.*, and Mr. Totley prepared the plans.

RESIDENTIAL FLATS, BIRMINGHAM.—A block of residential flats is about to be erected at Moseley. The plans for the work have been prepared by Mr. E. Stanley Mitton, architect.

MUNICIPAL BUILDINGS, TOTTENHAM.—The foundation-stones of the new municipal offices, public baths, fire station, and coroner's court at Tottenham-green were laid recently, and the general depôt at the rear was formally opened. Designs for the building having been obtained, these were submitted to an assessor, who awarded the first premium to Messrs. Taylor and Jennett, whose plans are now being carried out. Messrs. Lawrence and Son are erecting the new buildings. With regard to the general depôt, the buildings were designed by the Council's Engineer, Mr. Prescott. The baths will cost 28,000*l.*, the offices 18,000*l.*, with 1,000*l.* for furniture, and the fire brigade station 9,000*l.* to 10,000*l.*, and the general depôt has cost 18,000*l.* The municipal buildings are divided up into five distinct buildings—the offices, baths, fire station, coroner's court, and firemen's dwellings. The central block contains the Council chamber and the public offices, which have been placed on the ground floor, those for the clerk and engineer on either side of the entrance, and those for the medical officer at the back. The principal staircase gives access to a wide corridor, from which open the Council chamber and committee-rooms, placed so as to look on to the green, and form the principal feature of the whole group of buildings. The building on the northern side of the site is the public baths. This will contain swimming baths, first and second class, private baths for both men and women, and a house for the superintendent with rooms overlooking the green. The first-class bath has been arranged so that it can be used in the summer as a swimming bath, and in the winter for entertainments or meetings, for which purpose it will be floored over, and will be provided with a special entrance and cloak-rooms and ample exits in case of emergency. At the back of the baths are the boiler-house and laundry, with all necessary apparatus for heating the baths. A study has been made of this in conjunction with the heating engineers in the hope of obtaining the best and most economically-heated baths in the neighbourhood of London. The building on the south side of the site is the fire station. This will contain an engine-room for two engines, and a watch-room facing the green. Above will be the superintendent's house, a recreation-room for the firemen, and some quarters for single men. At the back will be a cleaning yard, with the stables, stores, workshop, etc. The coroner's court and fire quarters for married firemen are situated at the back of the site.

STAINED GLASS AND DECORATION.

WINDOW, TOWN HALL, BIRKENHEAD.—A stained-glass window, designed by Mr. Gilbert Percival Gamon, of London, has been set up in the main staircase of the town hall. It consists of three lights; the design depicts the great hall of the Benedictine Priory of SS. Mary and James, at Birkenhead, and is intended to commemorate the judgment by King Edward I. in 1277 of a dispute that had arisen as to rights of territory between King Alexander III. of Scotland and Robert de Insula, Prince Bishop of Durham. In the two side lights are figures of the Bishops of St. Andrews and Dumblane, and Robert Bruce, Earl of Carrick, and the Prior of SS. Mary and James and the Chancellor of the Bishop of Durham. In the middle light is King Edward I. seated, and habited in a costume based upon that shown in his Great Seal.

FOREIGN.

FRANCE.—The "Société Americaine des Beaux-Arts," composed of former American pupils of the Ecole des Beaux-Arts, has opened for the first time a competition for a "Prix de Paris," which will be to American students what the "Prix de Rome" is to French students, and the winner will have a course of education at the Ecole des Beaux-Arts.——A funeral chapel is being constructed in the crypt of Bourges Cathedral, to receive the remains of the archbishops of the diocese.——A monument to Talma has been inaugurated at Poix-du-Nord. M. Fagel is the sculptor.——A new bridge has just been built over the Rhone connecting the departments of Isère and l'Ain. There is talk of the erection of a new one over the Seine, between Issy and Boulogne-Billancourt.——The large clock at Gravelines, known under the name of the Bassin Vauban, is to be enlarged at a cost of 500,000 francs.——M. Sanson, the architect, has been commissioned by a wealthy American to build a large château in Louis XIV. style, on the estate at La Muette, between the Avenue Raphaël and the boulevard Suchet. Six million francs are to be spent on the building.——The Armenian chapel in Rue Jean Goujon has just been opened. M. Guilbert is the architect, and the decorative painting is by M. Leroy.——The Government have commissioned M. Vernon, the medallist, to design a new Great Seal of France, to replace that which dates from the Revolution of 1848.——The Académie des Beaux-Arts has awarded the Felix Duban prize to M. Tony Garnier, student at the Villa Medici.——M. Gauquié, the sculptor, has just completed the restoration of the pediment sculpture of the Madeleine, originally executed by Lemaire.——The ancient church of Arcis-sur-Aube has been classed among the Monuments Historiques, and is now to be restored at the cost of the State.

GERMANY.—The new "Kaiser Friedrich Museum" at Berlin, designed and carried out by Herr Thne and Herr Hasak, is to be opened on October 18. The building stands on an island formed by the Spree and a tributary, and consists of three stories; the top story, having a top light, is to be devoted to paintings, the middle to sculptures, and the ground floor to collections of coins, etc.

AUSTRIA.—Herr Moses Burstyn, marine electrical engineer, died on September 20, in his sixty-fourth year.——A new asylum in Vienna was opened on September 27. The building is intended to accommodate 2,000 patients, with provision for further extensions; the cost of the building amounts to 18,000,000 kronen.——The building of the new schools at Mattighofen, designed by Herr Petri, is being superintended by Herr Josef Schreckender.——The work of the restoration of the cathedral at Parenzo has been entrusted to the engineer, Herr Eduard Zotter.

BUILDING MATTERS IN RIO DE JANEIRO.—Writing in August respecting the trade and commerce of the capital of Brazil, Mr. Vice-Consul Rhind comments on the want of continuity in the fiscal policy of the country, and the consequent risks incurred by investors of capital. For instance, attracted by the protective tariff, large sums have been employed in the erection of flour mills throughout the country, and it would seem that the interests of this industry, in which British capital is largely represented, are somewhat jeopardised by a new departure in favour of flour imported from the United States which is now admitted at 20 per cent. less duty than that charged on the like goods received from other sources. Even building property has proved not to be a safe investment in consequence of a law recently passed regulating expropriations for public purposes. This law removes the old processes and basis of valuation and indemnity prevailing when present holders acquired their properties, and places these matters, in the absence of mutual agreement, in the hands of three arbitrators, one of whom is nominated by the authorities, the second by the owner, and the third by the judge in charge of the case. No doubt operations connected with the present city improvements have been much expedited by this arrangement, and, in fact, the law was passed with this particular object, but there is a feeling that the interests of proprietors have not always been adequately acknowledged. The extensive building operations which must ensue upon the present demolition of large areas of the city should afford an opportunity to the suppliers of builders' furnishings greatly to increase their sales. Suppliers of material for street paving should also keep themselves informed of the requirements of Rio, as new methods have for some time been under trial. As a result, asphalt paving is to be adopted over a section of about 30,000 sq. yds., and it has been decided to experiment over an area of some 1,200 sq. yds. with a description of bituminous bricks made in Amsterdam.

CITY IMPROVEMENT IN MEXICO.—A glowing description of the improved condition of Mexico City is given in the Consular report of Mr. L. J. Jerome, who writes:—"If there are signs of progress in almost every part of the Republic, it is in the capital that they are most marked. In the last five years the transformation has been complete, but in another five years it will be even greater. Already, people who have been away for a short period of three years hardly recognise the town, so great has been the change. Clean asphalted thoroughfares, brilliantly lighted at night, new handsome streets, a whole new residential quarter, the magnificent new general post office, the new general hospital, the imposing piles of the new poor-houses on the most approved modern principles, the parks and public gardens in the best of order and brilliant with flowers, many other public buildings in course of construction, as well as private houses, residential flats, and American steel frames, business houses in every stage, with armies of masons and carpenters working to complete them, and still more being projected and begun, are to be seen on all sides. With all the building that has been done rents are not lowered, and from all appearances are not likely to be for some time, so great is the demand, alike for houses, shops, and offices. Moderate-sized unfurnished houses of ten or twelve rooms let for from 15*l.* to 30*l.* a month, and rents in the suburbs are almost as high." Mr. Jerome adds that the British colony in Mexico City has considerably increased, and, although their enterprises are not so much advertised as the Americans, they are of importance, notably in electric light and power. The Montreal (Canada) Mexican Light and Power Company has acquired a controlling interest in the German Electric Light Company, and the Mexican Gas and Electric Light Company of London has completed its new modern power-station at San Lazaro. The street tramways (the Electric Tramways, Ltd., of London), which is not altogether British, as both Germans and Americans control much of the capital, may be called a British undertaking; then on a smaller scale there are Englishmen making harness, and building carriages, and engaged in numerous trades, all of which, so to speak, have been created in the last five years. Canadians have been even more active, and a Canadian Commercial Club has been formed.

MISCELLANEOUS.

GLASGOW TECHNICAL COLLEGE ARCHITECTURAL CRAFTSMEN'S SOCIETY.—At the opening meeting of the session the President, Mr. Wm. H. Baxter, delivered his opening address on "The Training of our Apprentice Craftsmen." He deplored the backward tendency and the declining skill on the part of the workman, which was creating quite as much concern in America and Germany as in this country, and emphasised the necessity of greater attention to technical education on the part of both workman and employer, quoting from the reports of the recent Mosely Commission in support of his views. Professor Gourlay moved a vote of thanks to the lecturer, which was seconded by Mr. C. Ernest Monro.

DEMAND FOR ROOFING TILES IN SOUTH AFRICA.—The *South African Trade Journal*, published at Cape Town, asserts that there is a constantly growing demand for roofing tiles in the building trade in South Africa. While objection is raised to their employment on account of the greater difficulty entailed in the matter of forming a water-tight roof, public taste is beginning to incline more and more in their favour. It is added that the manufacture of these goods has been entered upon in many quarters of South Africa, but that there is still ample scope for enterprise on the part of United Kingdom manufacturers. "In any case," observes the *Journal*, "the demand for their manufacture in South Africa is likely to steadily grow for some considerable time to come, and this feature is well worth the attention of the manufacturers concerned."

SIAMESE TEAK.—In his report on the trade of Bangkok for the year 1903 Mr. Beckett, the British Consul, states that the teak export was a very large one. In fact, the export (58,146 tons, of which 1,508 tons were sent to the United Kingdom), valued at 439,675*l.*, was the greatest that has ever been recorded, the nearest approach to it being in 1894, when it was put down at 57,719 tons. According to the Consular Commercial Report for 1895, however, the export for that year, which was stated in the returns of the custom house to be 48,994 tons, really amounted to 61,828 tons, which, if correct, would leave the record with that year. At all events the export during 1903 was more than 10,000 tons in excess of the average of the last five years. Prices of first quality teak logs remained fairly steady at from 9*l.* to 9*l.* 10s. per load f.o.b., and first-class teak planks from 10*l.* to 12*l.* 10s. per load, according to specification. Best second-class logs fetched from 5*l.* to 6*l.* per load. In India prices at Bombay advanced rapidly towards the end of the year, the highest levels on record for Siam teak being reached in January of this year. Calcutta prices only partially followed the advance in Bombay. The export of miscellaneous woods fell nearly 5,000 tons below the previous year. It is to be regretted, Mr. Beckett remarks, that more use cannot be made of the many valuable woods to be found in the forests of Siam. Cost of extraction and transport doubtless mainly accounts for this. The export shows no symptom of increasing, and its total value during 1903 was less than 20,000*l.*

PROPOSED REGISTER OF EDINBURGH HISTORICAL BUILDINGS.—Bailie Dobie brought before the meeting of the Lord Provost's Committee of Edinburgh Town Council on the 5th inst. a motion with regard to the advisableness of preparing a register of all the old buildings in Edinburgh of historical or architectural interest, and considering whether any steps should be taken for the preservation of those considered of sufficient importance to be retained or restored, and report. The matter was remitted to a sub-committee.

THE BEDE MEMORIAL AT MONKWEARMOUTH.—The national memorial to the Venerable Bede, "the Father of English learning," was unveiled by the Archbishop of York on the 11th inst. The memorial takes the form of an Anglican cross placed upon a site in the Cliff Park at Roker, near Sunderland. The cross stands on ground which once was the territory of the twin monasteries of Monkwearmouth and Jarrow, and is near the supposed birthplace and the tomb of Bede. The actual work of designing the memorial was entrusted to Mr. Charles Hodges, of Hexham, and the cross has been sculptured by Mr. Geo. W. Milburn, York. It is 25 ft. high, and the stone for it has, by permission of Lord Armstrong, been taken from his private quarry at Cragside. The shaft on the west side is ornamented with scroll patterns from the Lindisfarne Gospel and from the stones at Monkwearmouth, and contains, within a twisted loop of the duck-billed serpent seen on the Monkwearmouth doorway, pictorial subjects from the life of Bede. On the east side are Roman letters giving two extracts from Bede's works—one from the Ecclesiastical History, and one from his life of St. Cuthbert. On the south side, within a vine scroll, is carved in alto and bas-relief the heads and busts of the friends and associates of Bede. On the north side a scroll introducing birds and animals, springing from a harp, emblematic of his poetic gifts, shows Bede's love of nature. Beneath these four sculptured sides runs in a band the verse written by Bede on his death-bed, beginning "Fore there nedfarae" in Latin, in Rune, in Minuscule, and in English. On the block out of which the cross rises is carved a short inscription as follows:—"To the glory of God and in memory of His servant Bede.—673-735." The foundation for the cross has been prepared under the supervision of Mr. J. W. Moncur, the Borough Surveyor.

HOSPITAL ACCOMMODATION AT CHELMSFORD.—A Local Government inquiry was held at the Corn Exchange, Chelmsford, on the 3rd inst., before Mr. W. W. E. Fletcher, Inspector to the Board, into the application of the Chelmsford Joint Hospital Board for sanction to borrow 2,800*l.* for the extension of their Infectious Diseases Hospital in Baddow-road. The Clerk (Mr. A. S. Duffield) stated that the Board proposed to erect on the land at Great Baddow an additional block, consisting of one building, to contain on the ground floor one ward with six beds, one ward with four beds, and two further wards with one bed each, ward kitchen, etc. On the first floor, over the

centre of the building, it was proposed to have one ward with two beds and one day-room. The estimated cost, exclusive of architect's fees and incidentals, was 2,224*l.* Plans and estimates, prepared by Messrs. Pye and Bacon, had been approved by the Hospital Board. After further evidence the inquiry terminated.

APPOINTMENT OF SANITARY OFFICERS.—The Local Government Board has sanctioned appointments as follows:—Hackney—Mr. W. C. Vobe as an additional sanitary inspector; Lewisham—Mr. H. L. Hyde as sanitary inspector, in the room of Mr. A. J. Davis; Poplar—Mr. H. J. Langley as sanitary inspector *vice* Mr. F. J. Anthony, deceased; Southwark—Mr. F. Jenkinson as sanitary inspector, in place of Mr. H. Abson; Westminster—Mr. W. Williams as sanitary inspector, to fill the vacancy caused by transfer of Mr. T. G. Dee to a district in place of Mr. T. W. Calverley; Miss C. W. Byrne and Miss M. Carey as temporary female inspectors, from July 18, 1904, to January 17, 1905; Mr. A. L. Ware as temporary inspector, for a period of six months in the place of Mr. J. W. Kirk.

UNIVERSITY COLLEGE, LONDON.—Professor Simpson has commenced a course of instruction in Building Construction and Elementary Design. The system is that plans, sections, and sketch elevations of, say, a small country house are supplied to each student. On the next evening this design is presented drawn out in more complete form, with such modifications as each student may wish to make. This first design is in brick, with wood sash and casement windows. On subsequent evenings the different parts of the building are worked out to a larger scale. The first half of the evening is spent in criticising the drawings made during the previous week, the second half in lecturing on the particular subject for the ensuing week. The following are considered in detail, and exercises set on each:—Walls and bonding, footings and foundations, arches and offsets, chimneys and fireplaces, carpentry, roofs, floors and partitions, external plumbing, slating and tiling, drainage, joinery, skirting, windows, doors, staircases, etc. The result is a complete set of working drawings of one design. In the Spring Term one or more designs will be supplied as before in which various details of construction, such as stone walling, hollow walls, stone mullioned windows, steps, copings, structural ironwork, steel roofs, fireproof construction, areas, etc., not previously considered, will be worked out.

Legal.

WHAT IS A "DANGEROUS" BUILDING?

IMPORTANT CASE AT EASTBOURNE.

THE Eastbourne Magistrates on Friday last week were asked to give their decision in a case which is of peculiar interest to owners and builders of household property. Some time ago a fire occurred at a large block of residential flats in that town. As a result it was discovered that the builder had used inflammable material beneath the hearths—a flagrant breach of the building by-laws—and the Corporation insisted that the defects should be remedied. The building having been taken over by mortgagees, a considerable hardship was placed on them and on the tenants of the flats. The owners undertook to carry out the work, and, in a majority of cases, met with no opposition. One of the tenants, however, Richard S. Topham, refused the owners, The Law Guarantee and Trust Society, Ltd., admission, and for that was summoned before the Eastbourne Borough Bench.

The Town Clerk (Mr. H. W. Fovargue), recalling the circumstances of the case, which had been before the Bench on several occasions, explained that there was a fire at Hartington-mansions, and it was discovered that it was due to improper material found at the back of one of the grates, and on examination every grate was found to be in the same defective condition. Notice was given to the mortgagees in possession giving orders that the defects should be remedied in accordance with the building by-laws. The work was promptly put in hand, but when the owners came to Mr. Topham's flat he refused to allow the work to be completed. The mortgagees offered to allow Mr. Topham to occupy an empty flat whilst the work was being done, but he declined to accept that offer. Mr. Topham contended that his agreement should be cancelled, but the owners declined to take that course. A sum of twenty guineas as compensation was suggested, but this the mortgagees declined to pay. Mr. Ronald, as representing the mortgagees, contended that the mortgagees were innocent parties, because the buildings were erected by the mortgagor, a builder named Ellis, and the mortgagees now in possession were not responsible for the defects. It was therefore extremely hard on them to be called upon to execute the work, and they had alleged a negligence on the part of the building surveyors in failing to see that the work was properly done at the time the flats were erected. That, said the Town Clerk, was not an unreasonable complaint, but, speaking on behalf of the building surveyor, it was impossible for him to see every detail in every building which was erected in Eastbourne, especially when men were desirous of evading the by-laws. If it was incumbent on him to see every detail it would be necessary to have a building surveyor on every building from morning to night while building operations were in progress. The Corporation could not recognise any responsibility whatever in respect to any negligence made by their surveyor. He respectfully suggested that the Court was not one of equity, and therefore the question of compensation was not one for them to consider.

Mr. F. Lawson Lewis, on behalf of Mr. Topham, said that as the case had been adjourned to permit of a summons being served upon the owners, and as that had been done, the case against the owners should be heard before a decision was given in Mr. Topham's case. If the action failed against the owners, then, of course, it would fail against the tenants.

Mr. S. A. T. Rowlatt, who appeared on behalf of the owners, did not object to this course, and agreed with Mr. Lewis that if the application against the owners did not succeed, then the proceedings against the tenant must fail. The owners were perfectly willing to commence the work instantly, but they contended that the order could not be made against them.

Mr. Mayehewe (one of the Magistrates) pointed out that the work could not be carried out without the consent of Mr. Topham, and counsel agreed with this view.

It was eventually decided that the case against Mr. Ronald should be taken before the decision was given in Mr. Topham's case.

Mr. F. J. Ronald, of Quality-court, Chancery-lane, London, was summoned in respect to Nos. 6, 13, 15, 17, 18, and 20, Hartington-mansions for failing to carry into effect within forty-eight hours, an order made upon him by Mr. William Chapman Field, Building Surveyor to the Borough of Eastbourne. The Town Clerk admitted that the onus was upon him to prove that the building was dangerous, and the Borough Surveyor gave evidence that, in consequence of the fire, it was discovered that imflammable materials had been used in making the hearths, and that it was a source of danger to the occupants. The building was therefore dangerous.

Mr. Rowlatt argued at some length that the case did not come within the purviews of the "dangerous construction clauses," and should therefore be dismissed. The section, he said, was intended to apply to structures which were dangerous because they were insecure or ruinous, but it was ridiculous to say that a building was "dangerous" because it contained defects, and because one grate was defective it did not follow that all were.

The Bench, adopting this view, dismissed both summonses. They thought, however, that the work should be carried out, and that compensation should be allowed the tenant as suggested in the case. Defendants applied for their costs, but the Bench declined to make any order as to that.

EMPLOYERS' LIABILITY ACT.

"PACKING" AND "FENCING" SAW BENCHES.

JUDGE STONOR, on Monday, at the Marylebone County Court, delivered judgment in the case of Smith *v.* Giles, which was fully reported in the *Builder*, July 23 last.

The plaintiff was George Smith, builder's machinist, 2, Chichester-road, Kilburn, N.W., and he claimed damages, under the Employers' Liability Act, against Mr. William Giles, builder and contractor, 26, Macroom-road, Paddington, W.

Mr. Abinger was counsel for the plaintiff, and Mr. Shakespeare, counsel, appeared for the defendant.

The facts of the case are clearly stated in the judgment, as under. His Honour said:—In this action the plaintiff claims damages under the Employers' Liability Act for injuries sustained by him in defendant's employ—namely, the loss of a portion of the second, third, and fourth fingers of his left hand. . . . The plaintiff has been unable to work since the accident, and may continue so for some time longer. The accident occurred on December 12, the plaintiff's hand coming in contact with a circular saw whilst he was in the act of replacing a "slip" or board—which he was holding and guiding, to be cut by the saw—in consequence of the slip having fallen or rather shifted from what is called the "packing"—namely a piece of wood placed on the saw-bench beneath the slip, for the purpose of raising the same. The plaintiff contends that the accident happened in consequence of three defects in the machinery and the consequent mode of working it. The first of such alleged defects is that the bench was fixed and not raisable; the second is that the saw was of too great diameter, both defects rendering the use of packing necessary to raise the slip. The third of such alleged defects is that there was not a guard at the rear of the circular saw.

The issues in the present case appear, therefore, to be:—Whether the defendant was negligent in not having (1) a raisable bench; (2) a saw of less diameter; or (3) a guard at the rear of the saw.

It appeared by the evidence that fixed, as well as raisable, benches are very generally, and perhaps equally, used by the trade; and it is obvious that the substitution of raisable for fixed benches, and providing additional saws of various diameters, would probably entail great trouble or expense, and possibly be open to practical objections; and I am not prepared to say that the defendant has been guilty of negligence within the Employers' Liability Act in continuing to work with fixed benches, not having saws of various sizes, and consequently using packing as hitherto, which appears to be, roughly speaking, the course followed by half the trade at the present time. (See the case of Walsh *v.* Whiteley, 21, Q.B.D., 376.)

With regard to the third issue, the danger from not using guards on the saw-benches is quite obvious, and can easily be prevented at a trifling expense without further trouble or inconvenience. Guards also are very generally used in the trade at the present time, and the only objection I have heard made to them is that the men cannot be got to use them.

Upon the whole, however, having regard to the case of Walsh *v.* Whiteley, and other cases bearing on the subject, I do not feel justified in finding for the plaintiff on this third issue any more than on the first or second issues. I should notice that the defendant, at the hearing, raised the further defence of "*volenti non fit injuria*," but the plaintiff proved that he had objected to the dangerous mode of working in question, and remonstrated with the foreman, who promised to get smaller saws. This defence consequently failed according to the case of Holmes *v.* Clarke (30 L.J.R., Exch., 135). In the present action there must be a verdict for the defendant, but I think that it is a case in which I ought not to give costs.

Judgment accordingly.

It is understood that the man will have a claim under the Workmen's Compensation Act.

FAILURE TO DEPOSIT PLAN.

AT Southwark, on Wednesday, Henry Line, builder, of 81, Peckham-rye, was summoned before Mr. Baggallay by Sanitary Inspector Hoskins, on behalf of the Bermondsey Borough Council, for failing to deposit a plan with them before partially reconstructing a drain at the Alma London County Council School, Bermondsey, contrary to the London County Council by-laws. The defendant said that he had done a considerable amount of work at this school, for which he had given the municipal authority the required plans. Just before the men left the job the architect instructed them to put in a new gully in place of an old one, and a new pipe. The witness was away on his holidays at the time, and the men omitted to send a plan of this piece of additional work before commencing it. Sanitary Inspector Hoskins, in reply to the magistrate, admitted that plans had been deposited with regard to the other works. Mr. Baggallay: And do you say that another plan was required before this little extra piece of work was done? The witness: Yes, under the by-laws. Mr. Baggallay: This is the essence of municipal terrorism. Here is a man doing a lot of work and plans for everything have been deposited. Because he puts in one pipe and one little gully you summons him for not giving another plan. Sir William Grantham is indeed right. The summons is dismissed; it is perfectly preposterous.

BOROUGH COUNCIL AND DWELLINGS COMPANY.

AT Southwark Police Court, on Wednesday, the National Model Dwellings Company, Ltd., were summoned before Mr. Baggallay by the Southwark Borough Council for failing to comply with notices requiring certain sanitary work to be done at Queen's-buildings, Borough. There were twenty-one summonses in all. Mr. Topham, who appeared for the Borough Council, said that Queen's-buildings, of which the defendants were the owners, comprised 670 tenements, eleven shops, and housed 3,000 persons. The defendants were very slow

in complying with the Council's notices; some of those for which these summonses had been issued were served upon them last May. Mr. T. A. Wyles, secretary and manager to the Company, said the defendants attended to the notices as rapidly as possible. When there was any question of a nuisance the matter was put right immediately, but in these cases, where the reconstruction of the lavatories was required owing to what might be called a "sanitary fad," some time was necessary in order to do the work. He had received altogether seventy-one notices this year requiring new pans to be fitted, and he had complied with thirty-four. He kept two plumbers and a boy constantly employed at the work. The Company were not paying any dividend, and the repairs cost 1,000*l.* this year. Mr. Baggallay: That is only 30s. a house. Many of us would be very glad if we spent only that on repairs. Mr. Wyles: We are doing the work as fast as we can. You see it is not as if these were insanitary buildings; the death-rate is less than half of the rate for the whole of Southwark. Mr. Baggallay said the defendant should employ more men in order to get the work done more quickly. They would be fined 5*l.* 5s., and 5*l.* 5s. costs.

PATENTS OF THE WEEK.

APPLICATIONS PUBLISHED.*

19,467 of 1903.—M. N. RIDLEY and T. I. CAMMELL: *Slabs, Blocks, Beams, Arches, Flooring, Columns, Walls, Roofs, and the like, Constructed of Concrete and Metal.*

Slabs, blocks, beams, arches, flooring, columns, or the like, constructed of concrete and metal, the metal taking the form of two or more sheets of dovetail section, the grooves of the alternate sheets being set transversely of one another.

19,668 of 1903.—J. DELASPEE: *Cork Matting for Use as a Covering for Floors and Furniture, and for various other purposes.*

A sheet made from corks or pieces of cork which are so united together by means of wires passed therethrough, and attached to an outer framework that the corks lie either in close rows or in decorative designs, for which latter object the corks may be coloured or varnished.

19,875 of 1903.—P. E. J. A. CHAMPESME: *Revolving Chimney Cowls, Ventilators, Skylight Turrets, and the like.*

A self-directing chimney cowl for the purpose of facilitating draught, substantially consisting of a vertical spindle fixed upon a proper support mounted at the upper extremity of the chimney; the said vertical spindle tapering at its upper portion and provided with a collar, being surrounded by a sleeve which is rigidly connected with the cowl properly so called, and which receives at its upper portion a cap provided with a restricted lower aperture and internally with balls; the lower portion of the sleeve being provided with recesses furnished with balls retained in place by a collar surrounding the sleeve.

20,028 of 1903.—P. J. SADLER: *Brick Kilns.*

Brick kilns consisting of an arrangement of connecting flues and dampers between the bottom of one kiln and the top of another, and a chimney to each kiln with a main connecting flue from each to a stack or fan.

24,207 of 1903.—W. LUCY AND CO., LTD., and J. LAWRENCE: *Means for Supporting the Shelves of Bookcases, and the like.*

According to this invention a vertical rack or racks is, or are, formed on the uprights at each end of the shelf and the shelves are carried by bearers having formed on them a few teeth or serrations which engage the racks. The shelves are of such a length that when once in position they will not allow of movement of the bearers. Preferably the racks or serrations which may be of any convenient shape are cast in one with the uprights, and one of the bearers is made in one with the shelf.

24,385 of 1903.—R. CHANTRY: *A Siphon Water Waste Preventing Apparatus.*

This invention relates to the siphon portion of the apparatus. According to the invention the siphon is constructed of two tubes one within the other; the tubes being of such diameter as to leave sufficient space between them for the flow of the water which is forced up from a cylinder provided with a float, the cylinder being provided with a flat valve at bottom. When the water reaches top of the said inner tube it passes down such tube to the flush. The outer tube is covered over.

*All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

17,116 of 1904.—W. ECKSTEIN: *Means for Opening and Closing Fanlights, and the like.*

The object of this invention is to provide means for opening and closing a fanlight or the like by which the light may be held steady in any position. This is accomplished by fixing to the light a pin which enters a spiral groove in a disc pivoted to a bracket fixed to the frame at the side of the light.

17,235 of 1904.—C. ROBIN: *A Composition for the Manufacture of Ceramic Products.*

This invention relates to a composition for the manufacture of ceramic products such as bricks, tiles, pipes, and all kinds of earthenware. The new composition is characterised by a high ratio between the weights of the silica and alumina contained in it, which enables ceramic products of great lightness to be made from it. While in those clays the richest in silica which have heretofore been used for the manufacture of bricks and other earthenware products, the ratio of the silica to the alumina is not more than 3 to 3·5, and is generally 2 to 3, this ratio is increased to about 6 in this improved composition. A mixture which has been found to give good results in practice is composed of the following ingredients in about the proportion specified:—Silica, 69; alumina, 11·5; oxide of iron, 1·5; lime, 4·5; magnesia, 1·5; water, carbonic acid and organic matter, 12; total 100. This composition can be made either from suitable earth obtained directly from the ground, or by mixing several earths or substances of different origin.

19,644 of 1903.—F. J. TALBOT: *Means for Purifying Air.*

Means for purifying air, consisting in the combination of a fan, discs enclosing the sides of the vanes, a central air inlet opening, a permeable material around the outer extremity of the vanes or periphery of the fan, a casing enclosing said fan, a water tank at the lower part of said casing through which the periphery of the fan passes, a diaphragm extending from one side of the fan casing nearly to the periphery of the fan to form a water seal and an air delivery pipe or duct.

22,534 of 1903.—W. SHARPE: *Non-slipping Segmental Wood-paving Block.*

A wood-paving block made up of segments compressed together, the segments being held in position by stout wires running in grooves cut in each of the two sides of the block. The ends of the wires (the points of which are barbed) are bent at right angles and pressed into the end segments of the block. The segments vary slightly in length, the top of the block presenting an uneven surface.

22,597 of 1903.—T. WATSON: *A Fixing Brick.*

The bricks are made from blast furnace slag, run into water when in a molten state (and known as slag sand) or mixed with cement lime, sand, and like substances, made into bricks by mechanical pressure sufficiently dense to hold nails driven into them. These bricks are intended to be built into walls and chimney breasts of dwelling-houses, and other buildings for the purpose of holding and fixing the woodwork in the desired position, and as a substitute for wood plugs and wood blocks, thus reducing the risk of fire

6,825 of 1904.—D. D. MCBEAN: *Devices for Removing and Excluding Water while Constructing or Repairing Subaqueous and other Masonry.*

A device for sealing locks in masonry, comprising an impervious flexible sheet covering the opening, its extended edges being sealed in or to the adjacent material, and being adapted to receive a layer of superposed masonry, and means for draining off the flow of water from underneath the sheet until the superposed masonry has set and afterwards closing the same.

17,015 of 1904.—C. H. GRAY: *India-rubber Tiles for Flooring, and the like.*

The present invention relates to improvements in india-rubber tiles for floor coverings, and the like, and is particularly applicable to floorings of the kind described in the British Patent No. 6,389 of 1889, granted to Sir E. J. Harland and C. H. Gray, the object being to provide antiseptic india-rubber tiles suitable for use on ship board, in lavatories, and the like. According to the invention an antiseptic such as carbolic acid, chloride of lime, or the like is incorporated with the india-rubber of which the tile is formed, and the resulting tiles may be laid down separately, or may be combined into sheet and laid down in that form. Conveniently from 1 per cent. to 10 per cent. of the antiseptic may be used, but this proportion might be largely increased if desired.

TO CORRESPONDENTS.

R. W. E.—J. H. (Amounts should have been stated). —J. G.—J. H. F. (Below our limit).

NOTE.—The responsibility of signed articles, letters and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, manuscripts, or other documents, sent to or left at this office, unless he has specially asked for them.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

September 29.—By SPELMANS' (at North Walsham).	
North Walsham, Norfolk.—"The Lawn," and 3 a. 3 r. 9 p., f.	£1,525
Two houses and s., f. and c., y.r. 35*l.*	570
Two copyhold cottages	140
Impropriate tithe rent charge of 631*l.* 0s. 8d.	6,100
Skeyton, Norfolk.—A small holding, 23 a. 2 r. 10 p., f. and c.	325
By W. LUDLOW & BRISCOE (at Birmingham).	
Knowle, etc., Warwick.—Remaining portions of the Packwood Estate, 117 a. 2 r. 32 p., f. (in lots)	7,960
October 4.—By E. H. HENRY.	
Battersea.—3, Northcote-rd. (s.), u.t. 82¼ yrs., g.r. 15*l.*, e.r. 100*l.*	1,000
Clapham.—70, Chelsham-rd., u.t. 57½ yrs., g.r. 8*l.*, y.r. 50*l.*	440
Greenwich.—Humber-rd., l.g. rents 21*l.*, u.t. 66 yrs., g.r. nil	390
Penge.—Croydon-rd., l.g. rents 26*l.*, u.t. 58 yrs., g.r. nil	500
By MELLERSH & HARDING.	
Regent-street.—14, Ganton-st. (s.), f., y.r. 115*l.* 14s.	1,500
Clapton.—10, Powerscroft-rd., f., y.r. 50*l.*	800
By J HARRIS & SON (at West Meon).	
West Meon, Hants.—"East End Villa," and 4 a. 2 r. 4 p., f.	2,300
"East End Cottages" (three), and 0 a. 2 r. 9 p., f.	320
"Chappett's Farm," 22 a. 2 r. 17 p., f., y.r. 30*l.*	650
"Garrett's Farm," 38 a. 3 r. 5 p., f.	600
"Shaft's Farm," 19 a. 1 r. 34 p., f.	800
"Elmcroft," "Geneva Cottage," and 3 a. 0 r. 22 p., f.	1,400
"Cleverley's Farm," 12 a. 1 r. 22 p., f.	850
Sixteen freehold Cottages	2,060
"Lynch Meadow," 2 a. 3 r. 29 p., f.	170
Three freehold fields, 10 a. 2 r. 27 p.	560
"Ivy Cottage," f.	330
October 5.—By H. DONALDSON & SONS.	
De Beauvoir Town.—70, 78, 80, 82, and 84, Buckingham-rd., u.t. 20 yrs., g.r. 26*l.*, y.r. 176*l.*	1,210
Buckingham-rd., stabling, coach-house, and yard, u.t. 19 yrs., g.r. nil, w.r. 22*l.* 2s.	115
Hackney.—22, St. John's Church-rd., u.t. 58 yrs., g.r. 4*l.* 10s., e.r. 36*l.*	370
October 6.—By BALCH & BALCH.	
Holloway.—15, Poynings-rd., u.t. 66 yrs., g.r. 5*l* 10s., p.	320
Kentish Town.—11, Clarence-rd., y.r. 32*l.*, also l.g.r. 4*l.*, u.t. 24½ yrs., g.r. 4*l.*	205
By CRANFIELD & OLIPHANT.	
Battersea.—St. John's Hill, the "Prince of Wales" b.h., a freehold rental 50*l.*, reversion in 1½ yrs.	3,500
By MORTON & WATERS.	
Edgware-road.—26, Star-st., u.t. 26 yrs., g.r, 5*l.*, p.	380
By NEWBON, EDWARDS, & SHEPHARD.	
Holloway.—72 and 74, Mercer's-rd., u.t. 59½ yrs., g.r. 14*l.* 14s., y.r. 84*l.*	1,080
150, 152, and 154, Mercer's-rd., u.t. 71½ yrs., g.r. 21*l.*, y.r. 127*l.*	1,480
Dalston.—67 and 71, Malvern-rd., u.t. 55 yrs., g.r. 18*l.* 18s., y.r. 82*l.*	680
Finchley.—Ballard's-la., "Wentworth Hall," f., y.r. 35*l.*	550
New Southgate.—Bowes-rd., "Belgrano," u.t. 93 yrs., g.r. 8*l* 8s., y.r. 50*l.*	575
Islington.—38, Gibson-sq., u.t. 22½ yrs., g.r. 9*l.*, e.r. 50*l.*	320
Canonbury.—23, Canonbury Pk. South, u.t. 32 yrs., g.r. 7*l.*, y.r. 56*l.*	510
Holloway.—Fairmead-rd., "Fulford Houses" (flats), area 2,500 ft., f., y.r. 444*l.* 12s.	3,500
By STIMSON & SONS.	
Old Kent-road.—Nos. 769 to 775 (odd), area 10 700 ft., f., y.r. 146*l.*	1,940
Dulwich.—12, 16, 18, 30, 32, and 34, Shawbury-rd., u.t. 64 yrs., g.r. 24*l.* w.r 214*l.* 10s.	1,390
Bermondsey.—57 and 59, Camilla-rd., u.t. 31½ yrs., g.r. 9*l.*, w.r. 63*l.* 14s.	410
Old Kent-road.—24, 26, and 28, Mina-rd., u.t. 17½ yrs., g.r. 12*l.*, w.r. 78*l.*	445

Forest Hill.—309, Stanstead-rd. (s.), f., y.r. 65*l.* £1,130
307, Stanstead-rd. (s.), u.t. 52½ yrs., g.r. 6*l.*, y.r. 65*l.* 900

October 7.—By F. D. IBBETT & Co.

Hextable, Kent.—Dartford-rd., freehold building land, 9½ acres 1,130

By WINDRUM & CLEAVE.

Bow.—46 and 48, Arbery-rd., u.t. 47 yrs., g.r. 11*l.* y r. 58*l.* 565
20 and 22, Shepperd-st., f., w.r. 44*l.* 4s. .. 510
Poplar.—20, 22, and 24, Carmen-st., f., w.r. 70*l.* 4s. 775
18, Ellerthorpe-st., f., w.r. 33*l.* 16s..... 325

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold: c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental: w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for offices; s. for shops; ct. for court.

MEETINGS.

FRIDAY, OCTOBER 14.

Architectural Association. — Mr. E. Dockree on "Photography as Applied to Architecture"—Illustrated with Lantern Slides. 7.30 p.m.

SATURDAY, OCTOBER 15.

Institute of Sanitary Engineers, Ltd.—Visit to the Llernur System of Sewerage at Stanstead.

MONDAY, OCTOBER 17.

Liverpool Architectural Society.—Mr. G. H. Morton on "Modern Decoration." 6 p m.

TUESDAY, OCTOBER 18.

Institute of Sanitary Engineers, Ltd. (*Lectures in Practical Sanitary Science*).—Mr. A. A H. Scott on "Building Construction so far as it Relates to Sanitation." 7 p.m.

Institution of Heating and Ventilating Engineers (Incorporated).—Autumn Meeting. Holborn Restaurant. (1) Paper by Mr. H. H. Grundy on "The Warming of Public Buildings by the Warm Air System considered from a Hygienic Point of View." (2) Mr. A. H. Barker on "The Testing of Large Engineering Plants." (3) Discussion on "Boilers," opened by Mr. Louis F. Pearson. 2.30 p.m.

WEDNESDAY, OCTOBER 19.

Architectural Association Discussion Section and Camera and Cycling Club (*Joint Meeting*).—Mr. G. H. Smith on "Canterbury Cathedral." 7.30 p.m.

Institute of Builders.—Annual Dinner, Whitehall Rooms, Hotel Metropole, Charing Cross. 6.30 p.m.

Institute of Sanitary Engineers, Ltd.—Election Committee, 3 p.m. General Purposes and Finance Committee, 5 p.m.

Builders' Foremen and Clerks of Works' Institution.—Quarterly Meeting of the Members. 8 p.m.

THURSDAY, OCTOBER 20.

Carpenters' Company (*Lectures on Sanitary Building Construction*).—Mr. H. D. Searles-Wood on "Construction of Water Closets," etc. 7.30 p.m.

FRIDAY, OCTOBER 21.

Institution of Mechanical Engineers.—8 p.m.

PUBLISHER'S NOTICES.

Nat. Tel 6112, Gerrard. Telegrams, "The Builder, London."

THE INDEX (with TITLE-PAGE) for VOLUME LXXXVI. (January to June, 1904) was given as a supplement with the issue for July 9.

CLOTH CASES for Binding the Numbers are now ready, price 2s. 6d. each; also

READING CASES (Cloth), with Strings, price 9d. each.

THE EIGHTY-SIXTH VOLUME of "The Builder" (bound), price Twelve Shillings and Sixpence, is now ready.

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PREPAYMENT IS ABSOLUTELY NECESSARY.

*** Stamps *must not* be sent, but all sums should be remitted by Postal Orders, payable to J. MORGAN, and addressed to the Publisher of "THE BUILDER," Catherine Street, W.C.

Advertisements for the current week's issue are received up to THREE o'clock p.m. on THURSDAY, but "Classification" is impossible in the case of any which may reach the Office after HALF-PAST ONE p.m. on that day. Those intended for the Outside Wrapper should be in by TWELVE NOON on WEDNESDAY.

ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same must reach the Office before TEN o'clock on WEDNESDAY MORNING.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, &c., left at the Office in reply to advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

PERSONS advertising in "THE BUILDER" may have *Replies addressed to the Office*, Catherine Street, Covent Garden, W.C., *free of charge*. Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage. Unused stamps are returned to advertisers the week after publication.

AN EDITION Printed on THIN PAPER, for FOREIGN and COLONIAL CIRCULATION, is issued every week.

READING CASES { NINEPENCE EACH. By post (carefully packed) 1s.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.	
Hard Stocks.	1 15 0	per 1000 alongside, in river.
Rough Stocks and Grizzles	1 13 0	" " "
Facing Stocks ...	2 12 0	" " "
Shippers	2 10 0	" " "
Flettons	1 10 0	" at railway depôt.
Red Wire Cuts ...	1 14 0	" " "
Best Fareham Red	3 12 0	" " "
Best Red Pressed Ruabon Facing	5 0 0	" " "
Best Blue Pressed Staffordshire ...	4 4 0	" " "
Do. Bullnose	4 10 0	" " "
Best Stourbridge Fire Bricks.....	4 8 0	" " "
GLAZED BRICKS.		
Best White and Ivory Glazed Stretchers	13 0 0	" " "
Headers	12 0 0	" " "
Quoins, Bullnose, and Flats.....	17 0 0	" " "
Double Stretchers	19 0 0	" " "
Double Headers...	16 0 0	" " "
One Side and two Ends	19 0 0	" " "
Two Sides and one End	20 0 0	" " "
Splays, Chamferred, Squints	20 0 0	" " "
Best Dipped Salt Glazed Stretchers, and Header	12 0 0	" " "
Quoins, Bullnose, and Flats.....	14 0 0	" " "
Double Stretchers	15 0 0	" " "
Double Headers...	14 0 0	" " "
One Side and two Ends	15 0 0	" " "
Two Sides and one End	15 0 0	" " "
Splays, Chamferred, Squints	14 0 0	" " "
Second Quality White and Dipped Salt Glazed	2 0 0	" less than best.

	s. d.	
Thames and Pit Sand.....	7 3	per yard, delivered.
Thames Ballast.....	6 0	" "
Best Portland Cement	30 0	per ton, "
Best Ground Blue Lias Lime	21 0	" "

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime.....12s. 0d. per yard, delivered.
Stourbridge Fireclay in sacks 27s. 6d. per ton at rly. dpt.

STONE.

	s. d.	
BATH STONE—delivered on road waggons, Paddington Depôt	1 6½	per ft. cube.
Do. do. delivered on road waggons, Nine Elms Depôt	1 8½	" "
PORTLAND STONE (20 ft. average)—		
Brown Whitbed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf...	2 1	" "
White Basebed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf...	2 2½	" "

	s. d.	
Ancaster in blocks	1 11	per ft. cube, deld. rly. depôt.
Beer "	1 6	" "
Greenshill "	1 10	" "
Darley Dale in blocks...	2 4	" "
Red Corsehill "	2 5	" "
CloseburnRedFreestone	2 0	" "
Red Mansfield "	2 4	" "
YORK STONE—*Robin Hood Quality.*		
Scappled random blocks	2 10	" "
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3	per ft. super. "
6 in. rubbed two sides ditto, ditto	2 6	" "
3 in. sawn two sides slabs (random sizes)	0 11½	" "
2 in. to 2½ in. sawn one side slabs (random sizes)	0 7½	" "
1½ in. to 2 in. ditto, ditto	0 6	" "
HARD YORK—		
Scappled random blocks	3 0	per ft. cube, "
6 in. sawn two sides, landings to sizes (under 40 ft. super.)	2 8	per ft. super. "
6 in. rubbed two sides ditto	3 0	" "
3 in. sawn two sides (slabs random sizes)	1 2	" "
2 in. self-faced random flags	0 5	" "
Hopton Wood (Hard Bed)	in blocks 2 3	per ft. cube. deld. rly. depôt.
" " "	6 in. sawn both sides landings 2 7	per ft. super. deld. rly. depôt.
" " "	3 in. do. 1 2½	" "

SLATES.

in. in.	£ s. d.	
20 × 10 best blue Bangor	13 2 6	per 1000 of 1200 at r. d.
20 × 12 " "	13 17 6	" "
20 × 10 first quality "	13 0 0	" "
20 × 12 " " "	13 15 0	" "
16 × 8 " " "	7 5 0	" "
20 × 10 best blue Portmadoc	12 12 6	" "
16 × 8 " "	6 12 6	" "

SLATES (*continued*).

n. in.	£ s. d.	
20 × 10 best Eureka unfading green .	15 17 6	per 1000 of 1200 at r. d.
20 × 12 " "	18 7 6	" "
18 × 10 " "	13 5 0	" "
16 × 8 " "	10 5 0	" "
20 × 10 permanent green	11 12 6	" "
18 × 10 " "	9 12 6	" "
16 × 8 " "	6 12 6	" "

TILES.

	s. d.	
Best plain red roofing tiles .	42 0	per 1000 at rly. depôt.
Hip and Valley tiles ...	3 7	per doz.
Best Brosely tiles.....	50 0	per 1000 " "
Do. Ornamental tiles	52 6	" "
Hip and Valley tiles ...	4 0	per doz. " "
Best Ruabon red, brown, or brindled do. (Edwards)	57 6	per 1000 " "
Do. Ornamental do	60 0	" " "
Hip tiles	4 0	per doz. " "
Valley tiles	3 0	" " "
Best Red or Mottled Staffordshire do. (Peakes).....	51 9	per 1000 " "
Do. Ornamental do.....	54 6	" " "
Hip tiles	4 1	per doz. " "
Valley tiles	3 8	" " "
Best "Rosemary" brand plain tiles.....	48 0	per 1000 " "
Best Ornamental tiles	50 0	" " "
Hip tiles	4 0	per doz. " "
Valley tiles	3 8	" " "
Best "Hartshill" brand plain tiles, sand faced.	50 0	per 1000 " "
Do. pressed.....	47 6	" " "
Do. Ornamental do	50 0	" " "
Hip tiles	4 0	per doz. " "
Valley tiles	3 6	" " "

WOOD.

	At per standard. £ s. d.	£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in	15 10 0	16 10 0
Deals: best 3 by 4.....	14 10 0	15 10 0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11 10 0	12 10 0
Battens: best 2½ by 6 and 3 by 6 ..	0 10 0	less than 7 in. and 8 in.
Deals: seconds	1 0 0	less than best
Battens: seconds	0 10 0	" " "
2 in. by 4 in. and 2 in. by 6 in....	9 0 0	" " "
2 in. by 4½ in. and 2 in. by 5 in....	8 10 0	9 10 0
Foreign Sawn Boards—		
1 in. and 1¼ in. by 7 in.	0 10 0	more than battens.
¾ in.	1 0 0	"

	At per load of 50 ft.	
Fir timber: best middling Danzig or Memel (average specification)	4 10 0	5 0 0
Seconds	4 5 0	4 10 0
Small timber (8 in. to 10 in.) ...	3 12 6	3 15 0
Small timber (6 in. to 8 in.)	3 0 0	3 10 0
Swedish balks	2 15 0	3 0 0
Pitch-pine timber (30 ft. average)	3 5 0	3 15 0

JOINERS' WOOD.	At per standard.	
White Sea: first yellow deals, 3 in. by 11 in	23 0 0	24 0 0
3 in. by 9 in.	21 0 0	22 10 0
Battens, 2½ in. and 3 in. by 7 in.	17 0 0	18 10 0
Second yellow deals, 3 in. by 11 in.....	18 10 0	20 0 0
" " 3 in. by 9 in.	17 10 0	19 0 0
Battens, 2½ in. and 3 in. by 7 in.	13 10 0	14 10 0
Third yellow deals, 3 in. by 11 in. and 9 in.	15 10 0	16 10 0
Battens, 2½ in. and 3 in. by 7 in.	11 10 0	12 10 0
Petersburg: first yellow deals, 3 in. by 11 in.	21 0 0	22 10 0
Do. 3 in. by 9 in.....	18 0 0	19 10 0
Battens.....	13 10 0	15 0 0
Second yellow deals, 3 in. by 11 in.	16 0 0	17 0 0
Do. 3 in. by 9 in.....	14 10 0	16 0 0
Battens.....	11 0 0	12 10 0
Third yellow deals, 3 in. by 11 in.	13 10 0	14 0 0
Do. 3 in. by 9 in.....	13 0 0	14 0 0
Battens.....	10 0 0	11 0 0
White Sea and Petersburg :—		
First white deals, 3 in. by 11 in.	14 10 0	15 10 0
" " 3 in. by 9 in.	13 10 0	14 10 0
Battens	11 0 0	12 0 0
Second white deals, 3 in. by 11 in.	13 10 0	14 10 0
" " 3 in. by 9 in.	12 10 0	13 10 0
" " battens	9 10 0	10 10 0
Pitch-pine: deals.....	16 10 0	20 0 0
Under 2 in. thick extra	0 10 0	1 0 0
Yellow Pine—First, regular sizes	40 0 0	upwards.
Oddments	28 0 0	"
Seconds, regular sizes.....	30 0 0	"
Yellow Pine oddments	25 0 0	"
Kauri Pine—Planks, per ft. cube .	0 3 6	0 5 0
Danzig and Stettin Oak Logs—		
Large, per ft. cube	0 2 6	0 3 6
Small " "	0 2 3	0 2 6
Wainscot Oak Logs, per ft. cube.	0 5 0	0 5 6
Dry Wainscot Oak, per ft. sup. as inch	0 0 8	0 0 9
¾ in. do. do.	0 0 7	—
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch ...	0 0 9	0 1 0
Selected, Figury, per ft. sup. as inch	0 1 6	0 2 6
Dry Walnut, American, per ft. sup. as inch	0 0 10	0 1 0
Teak, per load	17 0 0	21 0 0
American Whitewood Planks, per ft. cube.....	0 4 0	—

Prepared Flooring—	Per square.	
1 in. by 7 in. yellow, planed and shot	0 13 6	0 17 6
1 in. by 7 in. yellow, planed and matched	0 14 0	0 18 0
1¼ in. by 7 in. yellow, planed and matched	0 16 0	1 0 0
1 in. by 7 in. white, planed and shot	0 12 0	0 14 6
1 in. by 7 in. white, planed and matched	0 12 6	0 15 0
1¼ in. by 7 in. white, planed and matched	0 15 0	0 16 6

WOOD (*continued*).

	Per square. £ s. d.	£ s. d.
Prepared Flooring (*continued*)—		
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0 11 0	0 13 6
1 in. by 7 in. do. do.	0 14 0	0 18 0
¾ in. by 7 in. white do. do.	0 10 0	0 11 6
1 in. by 7 in. do. do.	0 11 6	0 13 6

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	6 5 0 ...	7 5 0
Compound Girders, ordinary sections	8 2 6 ...	9 5 0
Angles, Tees and Channels, ordinary sections	7 17 6 ...	8 17 0
Flitch Plates	8 5 0 ...	8 15 0
Cast Iron Columns and Stanchions including ordinary patterns	7 2 6 ...	8 5 0

METALS.

	Per ton, in London. £ s. d.	£ s. d.
IRON—		
Common Bars	7 5 0 ...	7 15 0
Staffordshire Crown Bars, good merchant quality	7 15 0 ...	8 5 0
Staffordshire "Marked Bars"	10 0 0 ...	—
Mild Steel Bars	8 15 0 ...	9 5 0
Hoop Iron, basis price	9 5 0 ...	9 10 0
" " Galvanized	17 10 0 ...	—

("And upwards, according to size and gauge.)

Sheet Iron, Black—		
Ordinary sizes to 20 g.	9 15 0 ...	—
" " 24 g.	10 15 0 ...	—
" " 26 g.	12 5 0 ...	—
Sheet Iron, Galvanised, flat, ordinary quality—		
Ordinary sizes—6 ft. by 2 ft. to 3 ft. to 20 g.	12 15 0 ...	—
Ordinary sizes to 22 g. and 24 g.	13 5 0 ...	—
" " 26 g.	14 5 0 ...	—
Sheet Iron, Galvanised, flat, best quality—		
Ordinary sizes to 20 g.	16 0 0 ...	—
" " 22 g. and 24 g.	16 10 0 ...	—
" " 26 g.	18 0 0 ...	—
Galvanised Corrugated Sheets—		
Ordinary sizes 6 ft. to 8 ft. 20 g.	12 10 0 ...	—
" " 22 g. and 24 g.	13 0 0 ...	—
" " 26 g.	13 15 0 ...	—
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	11 15 0 ...	—
Best Soft Steel Sheets, 22 g. & 24 g.	12 15 0 ...	—
" " 26 g.	14 0 0 ...	—
Cut nails, 3 in. to 6 in.	9 0 0 ...	9 10 0

(Under 3 in., usual trade extras.)

LEAD, &c.

	Per ton, in London. £ s. d.	£ s. d.
LEAD—Sheet, English, 3 lb. and up	14 10 0 ...	—
Pipe in coils	15 0 0 ...	—
Soil pipe	17 10 0 ...	—
Compo pipe	17 10 0 ...	—
ZINC—Sheet—		
Vieille Montagne ....ton	27 10 0 ...	—
Silesian	27 5 0 ...	—
COPPER—		
Strong Sheet....per lb.	0 0 10 ...	—
Thin " .... "	0 0 11 ...	—
Copper nails .... "	0 0 10 ...	—
BRASS—		
Strong Sheet.... "	0 0 9½ ...	—
Thin " .... "	0 0 10 ...	—
TIN—English Ingots .... "	0 1 3½ ...	—
SOLDER—Plumbers' .... "	0 0 6½ ...	—
Tinmen's.... "	0 0 8 ...	—
Blowpipe.... "	0 0 9 ...	—

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2⅝d. per ft. delivered.
" fourths	2d. " "
21 oz. thirds	3⅛d. " "
" fourths	3d. " "
26 oz. thirds	4⅛d. " "
" fourths	3⅝d. " "
32 oz. thirds	5⅛d. " "
" fourths	5d. " "
Fluted Sheet, 15 oz.	3½d. " "
" 21 oz.	4½d. " "
½ Hartley's Rolled Plate	2d. " "
⅓ " " " "	2½d. " "
¼ " " " "	2½d. " "

OILS, &c.

		£ s. d.
Raw Linseed Oil in pipes	per gallon	0 1 7
" " " in barrels	"	0 1 8
" " " in drums	"	0 1 10
Boiled " " in pipes	"	0 1 9
" " " in barrels	"	0 1 10
" " " in drums	"	0 2 0
Turpentine, in barrels	"	0 3 4
" in drums	"	0 3 6
Genuine Ground English White Lead	per ton	18 15 0
Red Lead, Dry	"	18 10 0
Best Linseed Oil Putty	per cwt.	0 6 6
Stockholm Tar	per barrel	1 12 0

VARNISHES, &c.

	Per gallon. £ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of Churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0
White Copal Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 6
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

TERMS OF SUBSCRIPTION.

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TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays*. [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l*., unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

ALNWICK.—For sewerage works at Radcliffe, for the Rural District Council:—

McLaren & Son*	£230 0 0	A. Douglas....	£185 10 0
R. & G. Brown	198 15 0	R. Carse & Son, Amble*	149 19 8
J. Thompson ..	189 17 0		

BOLTON-UPON-DEARNE.—For erecting Council offices and Carnegie library, for the Urban District Council. Mr. J. W. Wilson, architect, Hoyland:—

H. Sydney, Nora-street, Goldthorpe, Rotherham £3,636

BOLTON-UPON-DEARNE.—For private street works, Nora-street, Goldthorpe, for the Urban District Council:—

H. Sydney, Nora-street, Goldthorpe, Rotherham £749 12 6

BRENTFORD.—For forming new roadway and retaining wall at Kew Bridge, for the Urban District Council. Mr. Nowell Parr, Engineer and Surveyor, Clifden House, Boston-road, Brentford:—

J. Macklin..	£3,688 3 0	Wimpey & Co.	£2,815 0 0
Wilkinson Bros.	3,414 0 0	Nowell & Co.	2,750 0 0
T. Watson, jun.	3,321 9 9	F. Thacker ..	2,673 16 5
London and County Builders..	3,182 10 6½	J. Ball.....	2,619 0 0
Mowlem & Co.	3,018 0 0	T. Adams ..	2,568 0 0
W. Neave & Son.....	2,825 0 0	Dorey & Co., Brentford *	2,549 0 0
		Kavanagh & Co.	2,547 0 0
		W. H. Wheeler	2,384 0 0

BRIDGWATER.—For alterations to cottages on the Ashleigh Estate, for Mr. Albert Lewis. Mr. John W. Hill, architect. Quantities supplied:—

Fursland	£145	Bryer	£140
Geen	143	Gleed Bros.*	138

BRIDGWATER.—For walls, railing, and gates to private enclosures on the Ashleigh Estate, for Mr. Albert Lewis. Mr. John W. Hill, architect. Quantities supplied:—

Geen	£171 0	Fursland.....	£139 0
Bryer	140 0	Gleed Bros.*	137 10

BROADSTAIRS.—For the erection of a pair of villas in Rectory-road, Broadstairs, Kent, for Mr. G. A. Holmes. Mr. W. L. Dowton, architect, City Bank-chambers, Bedford-row, W.C.:—

H. J. Court	£1,415 0 0	J. T. May ..	£1,195 0 0
Huskell & Grimbly ..	1,371 0 0	R. E. Yates	1,150 0 0
H. W. Rigden	1,366 0 0	E. Brown ..	1,140 0 0
G. H. Fuggle	1,352 2 9	Horne & Co.	1,120 0 0
J. H. Forwalk	1,340 0 0	J. W. Woodhall & Son, Ltd. (informal) ..	1,024 10 0
Price Bros.	1,332 0 0		
G. Miriams..	1,209 0 0		

DENABY MAIN.—For new hospital, for Denaby Main Collieries workmen, for the Workmen. Mr. H. L. Smethurst, architect, Conisborough, near Rotherham:—

Salmon & Co.	£4,651 17 6	Robinson Bros.	£2,558 0 0
Wellerman Bros.	3,293 10 0	B. Wortley, Doncaster *	2,444 11 0

DORCHESTER.—For making-up the eastern half of Maumbury way, for the Town Council. Mr. G. J. Hunt, Borough Engineer and Surveyor, Dorchester:—

Grounds & Newton, Bournemouth* £715 12 4

DURHAM.—For building a house, for Mr. K. C. Bayley. Mr. Stephen Wilkinson, architect, 30, Mosley-street, Newcastle-on-Tyne:—

Gradon & Son.....	£1,295 6 0	R. Gardner..	£1,109 15 1
Arkless Bros.	1,274 1 6	C. Groves, Chester-le-Street* ..	1,099 0 0
W. Lodge ..	1,227 0 0	H. C. Howe	1,097 0 0
J. G. Bradley	1,193 0 0		
Davison & Bolam ..	1,192 5 1		

EGREMONT (Cumberland).—For erecting seven houses at Scurgill, for Messrs. Muncaster & Cook. Mr. J. S. Stout, architect:—

Mason: H. Tinnion, Flimby, Cumberland	£906	10 0
Joiner: H. Tinnion, Flimby, Cumberland..	353	10 0
Plumber: W. Holloway, Queen-street, Whitehaven	52	11 11
Plasterer: Lawson & Son, Gordon-street, Workington	175	0 0
Slater: E. Burrows, Station-road, Workington	93	12 8
Painter: R. Downes, Main-street, Egremont	31	10 0

ELBURTON.—For the erection of dwelling house on site No. 6 of the Above Town Building Estate, Elburton-cross, near Plymouth, Devon, for Mr. F. J. Moor. Mr. J. Harvey, architect and surveyor, Plymouth:—

R. Gardiner, Elburton* £400

EPSOM.—For a detached house, Hylands Estate, Epsom, for Mr. W. J. Payne, and under the supervision of Mr. Arthur L. Dartnell, architect and surveyor, 34, High-street, Croydon:—

Roll & Taylor	£825	H. Bacon	£697
Cropley Bros.	769	W. Roberts*	629
Truett & Steel.....	740		

HARROGATE.—For private street improvement works in roads off Walker-road, for the Corporation. Mr. F. Bagshaw, Borough Engineer and Surveyor, Municipal Offices, Harrogate:—

Bilton Drive.

E. Long, 5, Albert-terrace, Starbeck* £378 6 6

Back Roads on N.W. Side of Walker-road.

E. Long, 5, Albert-terrace, Starbeck* £480 16 11

West Grove-road.

C. H. Dickinson, Mayfield House, Starbeck* £158 15 1

De Ferrieres-avenue.

C. H. Dickinson, Mayfield House, Starbeck* £158 0 0

Chatsworth-grove.

B. Oxley, Wetherby-road, Harrogate* £153 9 9

HERNE BAY.—For road works, Beltinge-road, for the Urban District Council. Mr. F. W. J. Palmer, Surveyor, Town Hall, Herne Bay:—

C. Cassell ..	£2,470 0 0	J. Trueman..	£1,955 0 0
G. Pordige ..	2,125 0 0	J. Mills	1,985 18 9
W. Willson ..	1,844 0 0	A. S. Ingleton, Herne Bay*	1,467 0 0
Gann & Co...	1,723 0 0		
H. Beadle ..	1,997 0 0		

HERNE BAY.—For new drainage work, decorations, etc., to the Grand Hotel, Herne Bay, for Messrs. Mackeson & Co. Messrs. Law & Allen, architects, Dacre House, Arundel-street, London, W.C.:—

A. G. Ingleton & Co..... £367
W. W. Martin & Co., Ramsgate* 332

KING'S HEATH.—For erecting a depôt, including a fire-station, for the King's Norton and Northfield Urban District Council. Mr. A. W. Cross, Engineer and Surveyor, 23, Valentine-road, King's Heath:—

G. W. Harvey, King's Heath £3,503

LITTLE BOWDEN.—For sewerage works, etc., Clipston-street, for Mr. J. W. Newcombe. Messrs. Coales & Johnson, architects and surveyors, Bank-chambers, Market Harborough. Quantities by architects:—

Thurley Bros.	£817 8 8	T. Panter....	£609 10 11
Kirk & Dobson	673 19 2	A. Jewell	535 0 0
W. J. Payne	634 10 0	T. Hickman, Market Harborough* ..	509 11 1
J. Holme	623 18 10		
W. W. Brown	619 0 0	W. Higginst..	494 0 0
G. H. Eastwood	610 0 0		

‡ Withdrawn.

LONDON EDUCATION COMMITTEE TENDERS.

Walworth, Mina-road (for Heating Apparatus).

W. G. Cannon & Sons	£1,075 0
C. Kite & Co.....	750 0
R. Clarke	723 0
Brightside Foundry & Engineering Co.	699 15
Wontner-Smith, Gray, & Co.	649 0
Wippell Bros. & Row	630 0
J. Richmond & Co., Ltd.	622 0
J. Defries & Sons, Ltd.	612 10
J. Yetton	597 0
Lancashire Heating Co., 34, Temple-courts, Temple-row, Birmingham* ..	520 0

No. 23, Blackheath-road, Greenwich (for Executing Sanitary and Decorating Works).

W. Martin	£162	A. Spears, 40, Westminster Bridge-rd.*	£90
W. J. Howie	149		

London County Council Sydenham Technical Institute (for the installation of the electric light).

Drake & Gorham	£239 0 0	Spagnoletti & Co., Goldhawk-road, W.* (alternative No. 4)..	£150 0 0
Wenham & Waters	167 16 7		

LONDON.—For the erection of a disinfecting station at Tooting, for the Wandsworth Borough Council. Messrs. H. J. Marten and P. Dodd, surveyors, Council House, Wandsworth:—

J. Nicks	£4,092 10 6	Jones Bros...	£3,233 0 0
T. S. Page ..	4,005 7 3	J. Garrett & Son	3,212 0 0
T. Pearce....	4,000 0 0	General Builders, Ltd.....	3,197 0 0
R. E. Williams & Sons.....	3,790 0 0	W. Wallis ..	3,196 0 0
H. Dakin & Co.	3,574 0 0	J. Wells	3,105 0 0
C. Horton ..	3,452 0 0	B. E. Nightingale	3,092 0 0
Aldridge & Son	3,280 0 0	W. Lawrence & Son	3,084 0 0
A. Leather ..	3,267 0 0	R. Dean & Co.*	2,748 0 0
Turtle & Appleton..	3,245 0 0		
W. Johnson & Co.	3,239 0 0		

LONDON.—For erecting central library, for the Greenwich Borough Council. Mr. Sidney Smith, architect:—

	Foundations.	Superstructure.	
F. J. Gorham	£540 ..	£6,093 ..	£6,633
W. Mills	539 ..	6,077 ..	6,616
Harris & Wardrop....	666 ..	5,780 ..	6,446
H. Groves	610 ..	5,835 ..	6,445
W. Lawrence & Son, Canal Works, Waltham Cross*	690 ..	5,302 ..	5,992

LONDON.—For painting and other works at workhouse and infirmary premises, for the Guardians of St. Leonard's Parish, Shoreditch. Mr. F. J. Smith, architect, Parliament-mansions, Victoria-street, S.W.:—

P. McCarthy, 441, Fulham-road, S.W. .. £607

LONDON.—For alterations, decorations, etc., to 3, Stanford-road, S.W., for Mr. E. B. Crowe. Messrs. Law & Allen, architects, Dacre House, Arundel-street, W.C.:—

Creaton & Co., 13, Lancaster-street, W... £394

TENDERS.—*Continued on page* 403

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

(For some Contracts, &c., still open, but not included in this List, see previous issues.)

COMPETITION.

Nature of Work.	By whom Required.	Premiums.	Designs to be Delivered
*School	Croydon Education Committee	Not stated	No date.

CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tenders, etc., supplied by	Tenders to be Delivered
Catchment at Pumping-station on Risby Warren	Scunthorpe U.D.C.	A. M. Cobban, Engineer, Scunthorpe, Doncaster	Oct. 17
Connexion to Main Sewer	Wharfedale Guardians	Mr. Jones, Workhouse Master, Newall, Otley	do.
Pipes	Coventry Corporation	J. E. Swindlehurst, City Engineer, St. Mary's Hall, Coventry	do.
Cattle Market Improvements	Stockton-on-Tees Corporation	Borough Engineer's Office, Town Hall, Stockton	do.
Painting Deanhouse Workhouse Prem., Netherthong	Huddersfield Guardians	E. A. Rigby, Clerk, Union Offices, Ramsden-street, Huddersfield	do.
*Making-up Roads	Tottenham U.D.C.	Council's Engineer, 712, High-road, Tottenham	Oct. 18
Exten. of Workshops, Upper Seymour-st., Bradford	Bradford Co-oper. Cabinetmkrs. Soc.	H. A. Johnson, Engineer & Architect, 15, The Exchange, Bradford	do.
Telephonic Installation	Leicester Guardians	Giles, Gough, & Trollope, 28, Craven-street, Charing Cross, London	do.
Improvement to Catteshall-road and Bridge	Godalming Town Council	J. H. Norris, Borough Surveyor, Municipal Offices, Godalming	do.
Arc Lamps, etc. (Contract No. 15)	Barrow-in-Furness Corporation	H. R. Burnett, Electricity Works, Barrow	do.
Broken Granite	Tamworth R.D.C.	H. J. Clarson, Surveyor, 22, Church-street, Tamworth	do.
3,000-Volt Main Generator Switchboard	Fulham Borough Council	A. J. Fuller, Electrical & Consulting Engineer, Town Hall, Fulham	Oct. 19
Road Materials	Horsham U.D.C.	S. Mitchell, Clerk, Council Offices, Horsham	do.
600 yds. Dwarf Stone Boundary Wall, East End Park	Leeds Corporation	City Engineer's Office, Leeds	do.
600 yds. Wrought-Iron Railings and Two Gates	do.	do.	do.
Surface Water Drain, Park-street, Bridgend	Glamorgan County Council	T. M. Franklin, County Council Offices, Westgate-street, Cardiff	do.
Renovating Woodville-road Baptist Chapel, Cardiff		W. Beddoe Rees, Architect, 37, St. Mary-street, Cardiff	do.
Electric Light Plant, Engines, etc., Oldmill Poorhouse	Aberdeen City Parish Council	Brown & Watt, Architects, Aberdeen	do.
Steam Boilers	do.	do.	do.
Steam Distribution and Heating	do.	do.	do.
Non-Conducting Covering for Boilers	do.	do.	do.
Factory, St. George, Bristol		J. H. Woodington, Bethel-road, St. George, Bristol	do.
Road, Fence and Walls, Cowpe, near Waterfoot	Bacup Waterworks Committee	W. H. Elce, Borough Engineer, Municipal Offices, Bacup	do.
Water-Gas Plant	Rochdale Gas Committee	T. B. Ball, Manager, Gas Works, Dane-street, Rochdale	do.
Rolled Material for Construction of Waggons	East India Railway Co.	C. W. Young, Secretary, Nicholas-lane, E.C.	do.
Galvanised Sheets and Wind Ties	do.	do.	do.
House, Sawley, near Nottingham		G. Newcombe, Draycott	do.
Reconstruction of Floor of Winter Garden	Glasgow Corporation	City Engineer, 64, Cochrane-street, Glasgow	do.
Making-up Streets	Southend-on-Sea Corporation	E. J. Elford, Borough Surveyor, Southend	Oct. 20
Laundry Building at Workhouse, Bromley-by-Bow	Stepney Guardians	J. Rider, Hunt, & Co., Bridge House, 181, Queen Victoria-st., E.C.	do.
Paving, etc.	Greenwich Borough Council	Borough Engineer, Town Hall, Greenwich-road, S.E.	do.
3,100 ft. of Pipe Sewer, East Greenwich	do.	do.	do.
Valve House, Swilley	Devonport Corporation	Stevenson & Burstal, Engineers, 38, Parliament-st., Westminster	do.
Widening Bridge over Monkland Canal	Coatbridge Town Council	Simpson & Wilson, 175, Hope-street, Glasgow	do.
Paint. and Repairs, Miners' Institute, York-rd., Leeds		Caretaker	do.
Steel Vertical Tubular Boiler	Swansea Harbour Trustees	A. O Schenk, Engineer, Harbour Offices, Swansea	do.
Banstead-road Sewer, Purley	Croydon R.D.C.	R. M. Chart, F.S.I., Office of Council, Town Hall, Croydon	do.
Street Works, Taylor-road, Wallington	do.	do.	do.
Street Works, Mitcham	do.	do.	do.
Wesleyan Methodist Chapel, Brandon Colliery		H. T. Gradon, Architect, Durham	Oct. 21
*New Sorting Office at Streatham	H.M. Office of Works	H.M. Office of Works, Storey's Gate, S.W.	do.
*New Coastguard Buildings at Cockburnspath	Admiralty	Supt. Engineer, H.M. Naval Estab., Rosyth, Inverkeithing, N.B.	do.
Gas Meter Depôt, Whitworth-street West	Manchester Gas Committee	City Architect, Town Hall, Manchester	do.
Steel Structure, Part of Gas Meter Depôt	do.	do.	do.
Engine Shed Roofs	Burma Railways Co.	A. G. Begbie, 76, Gresham House, Old Broad-street, E.C.	do.
Tower Restoration, St. Andrew's Church, Bolton		G. Dickinson, Westholme, Bolton-on-Dearne	do.
Additions, Coltishall Schools, Norwich	Norfolk Education Committee	A. J. Scott, Architect, 24, Castle Meadow, Norwich	do.
Additions, Swanton Abbot Schools, Norwich	do.	do.	do.
*Repairs to Roof of Imfirm Wards, Raine-street, etc.	St. George-in-the East Guardians	Clerk's Offices, Raine-street, Old Gravel-lane, E.	do.
Valves, Derwent Aqueduct	Derwent Valley Water Board	E. Sandeman, Engineer's Office, Bamford, near Sheffield	Oct. 22
Road, Pengam	Bedwellty U.D.C.	J. H. Lewis, Surveyor, Blackwood, Mon.	do.
Private Street Works	Levenshulme U.D.C.	J. Jepson, Surveyor, Guardian-chambers, Tiviotdale, Stockport	do.
Flooring Swimming Bath, Selby	Selby U.D.C.	B. McG. Gray, Town Surveyor, Town Hall, Selby	do.
Stores	Glasgow & South-Western Railway	Stores Superintendents' Office, Kilmarnock	Oct. 24
Cornish Boiler, etc.	Bishop's Stortford Guardians	A. G. Gwynn, Clerk, Bishop's Stortford	do.
Private Street Works, Preston Rural	Steyning East R.D.C.	G. W. Warr, Surveyor, Council Offices, Southwick	do.
Scavenging	Repton R.D.C.	C. F. Chamberlin, Clk., Union Offices, Belvedere-rd., Burt'n-'n-Trent	do.
Cast-Iron Troughing and Covers	Lighting Committee, Dublin Corp.	S. Hartz, City Engineer, City Hall, Dublin	do.
Continuous Current Meters for Twelve Months	Ipswich Corporation	F. Ayton, Chief Engineer and Manager, Ipswich	do.
Making-up Streets	Milton-next-Sittingbourne U.D.C.	W. R. Warlow, Surveyor, Town Hall, Milton-next-Sittingbourne	do.
Water Closets and Bathroom, etc., at Fever Hospital	Dunshaughlin Guardians	F. Morris, Clerk, Board Room, Dunshaughlin, Ireland	Oct. 25
Refuse Destructor, London-road	Southend-on-Sea Corporation	E. J. Elford, Borough Surveyor, Southend	do.
Twenty-eight Workmen's Cottages, Pontypridd	Pontypridd Freeh. Ld., Bld. Co., Ltd.	T. R. Phillips, Architect, Old Bank-chambers, Pontypridd	do.
Road and Drains	do.	do.	do.
Granite	Aldershot U.D.C.	F. C. Uren, Surveyor, Aldershot	do.
Open Corrugated Iron Shed	Gillingham Corporation	F. C. Boucher, Town Clerk, Gillingham, Kent	do.
Sewer, Great Sutton	Wirral R.D.C.	F. E. Priest, Engineers, 13, Harrington-street, Liverpool	do.
Twenty Houses at Aberbeeg, Mon.	Aberbeeg (No. 5) Building Club	J. Rowlands, Glyncoed, Llanhilleth, Mon.	do.
Broken and Unbroken Stone	Erdington U.D.C.	H. H. Humphries, Surveyor, Public Hall, Erdington	Oct. 26
Broken Guernsey or Quenart Granite	Ware U.D.C.	G. H. Gisby, Clerk, Ware	do.
Iron Pens, Boundary Wall, etc., Scotswood-road	Newcastle-on-Tyne Market Com.	City Architect, Town Hall, Newcastle-on-Tyne	do.
Pumps for Water Supply from Wells, Cattal	Inebriates' Home Joint Committee	J. Vickers Edwards, County Hall, Wakefield	do.
*Erection of Museum Building	Southwark Borough Council	Borough Engineer, Town Hall, Walworth-road, S.E.	do.
*Engineer's Workshop, etc., at Infirmary	Lambeth Guardians	Clerk's Office, Brook-street, Kennington, S.E.	do.
*Making-up Roads	Wood Green U.D.C.	Council's Surveyor, Town Hall, Wood Green, N.	do.
Electric Telephones at Workhouse, Grove-road	Richmond Guardians	E. J. Partridge, F.S.I., Bank-chambers, Richmond	Oct. 27
172 Yards of Wrought-Iron Fencing	Chatham Corporation	C. Day, Borough Surveyor, Town Hall, Chatham	do.
Electrical Machinery	Sunderland Corporation	J. F. C. Snell, M.Inst.C.E., Town Hall, Sunderland	Oct. 28
Heating Council Chambers, Town Hall	Walthamstow U.D.C.	G. W. Holmes, Engineer, Town Hall, Walthamstow	do.
Station Buildings at Larkhall, etc.	Caledonian Railway Co.	Office of Engineer, Buchanan-street Station, Glasgow	Oct. 31
†Formation of New Road at Wood Green	The Company	Vigers & Co., 4, Frederick's-place, Old Jewry, E.C.	do.
Gas Engines and Pumps, etc.	Heaton Norris U.D.C.	W. Banks, Engineer, Council Offices, Heaton Moor	do.
Stoneware Pipes, Thornton Sewerage (Contract 17)	Thornton, etc., Sewerage Committee	A. Hindle, Engineer, 44, Abingdon-street, Blackpool	do.
Main Sewers—Northerly Portion (Contract 16)	do.	do.	do.
Main Sewers—Southerly Portion (Contract 15)	do.	do.	do.
*New School for Girls, Prince Edward-street	Mgrs. Maint'nedScls. Gt. Berkh'mst'd	C. H. & N. A. Rew, 185, High-street, Great Berkhamsted	do.
Corn Exchange, Offices, etc.	Wellingborough U.D.C.	J. M. Sharman, Architect, Market-square, Wellingborough	Nov. 1
Cattle Pens, etc.	do.	do.	do.
Levelling, Draining, etc.	do.	do.	do.

CONTRACTS.—*Continued.*

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, etc., supplied by	Tenders to be delivered
*Enlarging Sorting Office, East Croydon	H.M. Office of Works	H.M. Office of Works, Storey's Gate, S.W.	Nov. 1
Decoration, Repair, etc., Litherland Hse., Sefton-rd.	Litherland U.D.C.	A. H. Carter, Surveyor, 25, Sefton-road, Litherland	Nov. 2
Paving Works, Albion-road, Hounslow	Hesten and Isleworth U.D.C.	P. G. Parkman, Surveyor, Town Hall, Hounslow	do.
Paving Works, Kendal-road, Isleworth	do.	do.	do.
Paving Works, Nicholas-road, Hounslow	do.	do.	do.
*Retaining Wall Along Shore-road	Swanage U.D.C.	Council's Surveyor, Town Hall, Swanage	Nov. 5
Thirty-five Double-Deck Electric Tramcars	West Ham Corporation	H. E. Blain, Tramway Manager, West Ham-lane, E.	Nov. 11
*Construction of Engine and Boiler Houses	Sunderland, etc., Water Co.	T. & C. Hawksley, 30, Great George-street, Westminster	Nov. 21
200-kw. Steam Dynamo	.....	"A. B.," care of English, Scottish, etc., Bank, 38, Lombard-st., E.C.	No date.
School, Wallsend	Education Committee	W. H. Knowles, F.R.I.B.A., 37, Grainger-street, Newcastle	do.
Country House, St. James's Park, Harrogate	.....	J. E. Marten, Prince's-chambers, Harrogate	do.
Acetylene Gas to Stables, etc.	.....	A. S. Cromar, Lawrenny Estate Office, Begelly, R.S.O.	do.
Residence, Conisborough	.....	H. L. Smethurst, Architect, Conisborough	do.
Electric Lighting Works	Tamworth Corporation	Town Clerk	do.
Electric Light at Priestgate Offices, etc.	Darlington Co-operative Society	Society's Offices, Priestgate, Darlington	do.
*New Laundry Building, Bromley-by-Bow Workhouse	Stepney Union	J. Rider, Hunt, & Co., 181, Queen Victoria-street, E.C.	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in
*2nd Class Engrs., & Tech. Officers, Engr's. Dept. G.P.O.	Civil Service Commission	Not stated	Oct. 20
*Clerk of Works	Southwark Guardians	3*l.* 13s. 6d. weekly	do.
*Clerk of Works	Poplar and Stepney Sick Asylum Dis.	3*l.* 10s. weekly	Oct. 21
*Clerk of Works	Waltham Joint Hospital Board	3*l.* 3s. weekly	Oct. 24

Those marked with an asterisk (*) are advertised in this Number. *Competitions*, iv. *Contracts*, iv. vi. viii. x. *Public Appointments*, xvii xix.

TENDERS.—*Continued from page* 401.

LONDON.—For erecting a pair of villas in Woodlane, Highgate, for Mr. James Matts. Mr. Walter Graves, architect, Winchester House, London, E.C.:—

S. Bird & Co.	£3,050	Sheffield Bros.	£2,787
F. Mark	2,870	J. Wilmott & Sons, London*	2,585
F. Newton	2,800		

LONDON.—For works at baths and washhouses (contract No. 19), for the Borough Council of Bermondsey. Messrs. Kincaid, Waller, Manville, & Dawson, consulting engineers, 29, Great George-street, Westminster, S.W.:—

Section A.

T. Potter & Sons, 44, South Moulton-street, Oxford-street* £238 12

Section B.

T. Potter & Sons, 44, South Moulton-street, Oxford-street* 135 0

LONDON.—For alterations and additions at St. James-road School, Wandsworth-common, for the Wandsworth Guardians. Mr. Cecil A. Sharp, architect, 11, Old Queen-street, Queen Anne's-gate, S.W. Quantities by Mr. B. Swinstead, 36, Lincoln's-inn-fields:—

Turtle & Appleton	£19,788	Leslie & Co.	£17,217
Courtney & Fairburn	19,100	J. Smith & Sons	16,812
J. E. Johnson & Son	18,986	W. Lawrence & Son	16,794
Spencer, Santo, & Co.	18,379	Horton	16,786
Rowbotham	17,895	Perry & Co.	16,740
J. & M. Patrick	17,750	Stimpson & Co.	16,720
F. & H. F. Higgs	17,734	W. Johnson & Co., Ltd.	16,602
Higgs & Hill	17,634	Kerridge & Shaw	16,418
Martin, Wells, & Co.	17,410	Nightingale	16,354
		Patman & Fotheringham	15,973

[No Tender accepted.]

LONDON. — For the erection of motor-house, laundry, etc., at Shepherd's Hill, N. Mr. E. J. Paine, architect, 11, Great James-street, W.C. Quantities by architect:—

W. Goodman & Sons	£608	H. M. Dove	£590
F. Cotterell	593	G. S. S. Williams & Sons	564

LONDON.—For the erection of a church club at Hide-place, Westminster, for the Trustees of the Napier Memorial Fund. Messrs. Law & Allen, architects, Dacre House, Arundel-street, W.C.:—

Creaton & Co.	£2,775	W. Johnson & Co.	£2,650
Patman & Fotheringham	2,743	A. E. Symes, Stratford, E.*	2,416

LONDON.—For providing and fixing the necessary gear for recording the actual times of opening and closing the flaps regulating the storm-water discharges into Deptford Creek, for the London County Council:—

Glenfield & Kennedy* £105 10 0

LONDON.—For wiring and fittings for an electric light installation at the Eltham sub-station, for the London County Council:—

Alliance Electrical Co., Ltd.	£184 13	Oliver, Clark, & Co.	£155 0
W. H. Johnson	181 15	Durell & Co.	148 0
Rashleigh, Phipps, & Co.	161 0	National Electric Construction Co., Ltd.	144 0
L. Sunderland & Co.	160 0	A. H. Marshall & Co., 270, High-road, Leyton-stone*	139 10
G. Weston & Sons	155 10		
F. J. Coleby & Co.	155 0		

LONDON.—For the transforming plant required for the temporary provision of electric current, for power purposes, to the Greenwich electricity generating station, for the London County Council:—

	Time for Delivery. Weeks.	
British Westinghouse Electric Manufacturing Co., Ltd.	10	£1,083
Lancashire Dynamo & Motor Co., Ltd.	13	1,034
British Electric Plant Co., Ltd.	8	940
Johnson & Phillips	16	860
Electric Construction Co., Ltd., London and Wolverhampton*	14	860

LONDON.—For the supply and delivery of lime for treatment of sewage at Barking and Crossness outfall works, for the London County Council:—

		Delivered alongside jetty.		Delivered into store.	
		Barking.	Crossness.	Barking.	Crossness.
	Tons.	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.
L. Sommerfeld	23,800	12 9	12 9	14 3	14 3
W. Fletcher, Gravesend	9,000	—	—	—	14 5*
Associated Portland Cement Manufacturers (1900), Ltd., Fenchurch-street	23,800	13 3	13 3	14 9	14 9
	14,800	13 6	—	15 0*	—
	9,000	—	13 6	—	15 0
New Lime Company, Ltd.	14,800	13 9	—	15 0	—
Hall & Co., Croydon, Ltd.	9,000	—	—	—	15 0
C. Christopherson & Co.	5,000	15 0	15 0	—	—
Buxton Lime Firms Company, Ltd.	14,800	14 0	—	15 5	—
E. J. & W. Goldsmith, Ltd.	9,000	—	15 6	—	—
J. & U. Wilcox	23,800	15 6	15 6	—	—
B. J. Forder & Son, Ltd.	14,800	16 3	—	—	—
Current contract prices	—	—	—	15 6	15 3½

LONDON.—For the supply of proto-sulphate of iron for treatment of sewage at Barking and Crossness outfall works, for the London County Council:—

		Delivered alongside jetty.	
		Barking.	Crossness.
	Tons.	Per ton. s. d.	Per ton. s. d.
J. Griffiths, Morriston, near Swansea*	5,550	19 9	19 3
T. Herschel Jones & Co.	5,550	20 11	20 11
C. Tennant, Sons, & Co.	2,250	—	21 0
J. Bevan & Son	3,300	21 3	—
	2,250	—	21 3
Swansea Copperas Company	3,300	22 0	—
	2,250	—	22 0
D. Matthews	3,300	22 3	—
L. Sommerfeld	5,550	23 5	23 5
Higginbottom & Co.	5,550	24 3	24 6
Current contract prices T. Herschel Jones & Co.	—	21 0	—
Current contract prices D. Matthews	—	—	20 4½

LONDON.—For erecting iron fire-escape staircases, etc., at the Receiving Home for Children, Parson's Green, S.W., etc., for the Fulham Guardians. Mr. A. Saxon Snell, architect:—

R. Carr & Co.	£652 0 0	J. & F. May	£440 0 0
T. Potter & Sons	614 0 0	Herring & Son	423 0 0
A. Ritchie & Co.	518 12 0	F. Bird & Co.	399 10 0
Homan & Rogers	517 0 0	Jones & Co., 156 & 158, Goswell-road, E.C.‡	337 0 0
Hayward Bros. & Eckstein, Ltd.	490 14 3	C. R. Price	249 0 0
St. Pancras Iron Works Co.	467 0 0		

‡ Workhouse, £180. Infirmary, £80. Receiving home, £77. Total £337.

NORWICH.—For forming, draining, and metalling part of a new road upon Hotblack's Dereham-road Building Estate, for Messrs. J. T. & G. S. Hotblack. Messrs. Morgan & Buckingham, surveyors, Norwich. Quantities by surveyors:—

F. J. Hipperson	£465 0 0	E. J. Edwards	£280 9 5
J. Evans	417 16 0	H. S. Watling, Catton, Norwich*	244 0 0
W. J. Hannant	397 0 0		
G. Rackham	298 0 0		
E. Howes	283 9 6		

ROTHERHAM.—For alterations and additions to St. Ann's Boys' School and alterations to out-offices at Ferham-street Schools, for the Education Committee. Mr. J. Platts, architect, High-street, Rotherham. Quantities by architect :—

St. Anne's Boys' School.

G. Saul	£95 16 0	J. Cooper, Rawmarsh - road, Rotherham*	£63 0 0
T. Green	81 0 0		
R. Snell	65 10 0		
J. W. Bygate	64 11 7		

Ferham-street Schools.

J. Cooper* £75

SALISBURY. — For erecting the Carnegie Free Library buildings in Chipper-lane, for the Free Library Committee. Mr. A. C. Bothams, architect, 32, Chipper-lane, Salisbury. Quantities by architect :—

J. Long & Sons	£4,887 0	C. Mitchell	£4,295 0
Vincent & Folland	4,580 0	Wort & Way	4,244 16
Bailey & Marlow	4,500 0	Stephens, Bastow & Co.	4,221 0
T. Dawkins	4,425 0	Harris Bros., Dew's - road, Salisbury‡	4,205 0
Webb & Co.	4,363 0	A. J. Colborne	3,996 3
W. Webb	4,333 0		
E. Hale	4,300 0		

‡ Accepted subject to certain variations.

SOUTHWOLD. — For erecting sixteen workmen's dwellings, for the Corporation. Mr. T. E. Key, architect, 5, Bloomsbury-square, W.C., and Aldeburgh, Suffolk :—

C. Gimson	£3,180	H. Thompson	£2,660
C. W. Fowler	3,136	A. G. Beckett	2,607
J. C. Smith	2,992	J. Wales, Lowestoft*	2,395
E. Willmott & Sons	2,860		

STRABANE (Ireland).—For erecting two cottages, Main-street, for Mr. J. M'Kane. Mr. Wm. Stuart, B.E.Mem.San.Inst. Quantities by architect :—

S. Donnell & Co.	£280 0	Danl. M. Cafferty, Strabane*	£244 10
J. McGrath	245 0		

TAMWORTH.—For erecting two cottages, stabling, store-rooms, and sheds at Kettlebrook, for the Rural District Council. Mr. J. W. Gooderidge, architect, Bolebridge-street, Tamworth :—

H. Clifford	£1,943 10	H. Bonson	£1,695 0
G. Emery & Co.	1,789 0	B. Musson, Glascote*	1,691 15
Watton & Sons	1,721 0		

TOTTINGTON (Lancs.).—For making-up part of Scobell-street and Holly-street, for the Urban District Council. Mr. L. Kenyon, Surveyor, 33, Chapel-street, Tottington :—

Holly-street.

J. A. Greenhalgh, 186, Scobell-street* } £597 6 10
J. Greenhalgh, 222, Bury-road* .... }

Scobell-street (part of).

Radcliffe & Woodhead, Mosley-street, Bury* £1,539 5 7

WALSALL.—For erecting a public library in Lichfield-street, for the Corporation. Mr. J. S. Gibson, architect, 5, Old Bond-street, London, W. Quantities by Messrs. Young and Brown, London :—

H. Willcock & Co., Wolverhampton* £7,534

WALTHAMSTOW.—For warehouse, Somers-road, Walthamstow, for Mr. A. G. Bean. Plans and specification by Mr. H. W. Oxley, surveyor, 4, Addison-road, Walthamstow :—

E. Fuller & Son	£490 0	H. W. Stone	£379 5
J. A. Reed	469 0	D. Fairhead	350 10
J. & J. Dean	465 0	W. Moss, Wood Green*	349 10
West Bros., & Pettet	453 0	T. Sinfield & Co.	348 0

[Surveyor's estimate, £375.]

WALTHAM. — For the erection of an isolation hospital at Waltham Holy Cross, Essex, for the Waltham Joint Hospital Board :—

Keen & Sons	£10,690 15	Coulson & Lofts	£7,927 0
Shurmur & Sons, Ltd.	9,765 0	Thomas & Edge	7,800 0
Richardson & Bros.	8,850 0	Allen, Fairhead, & Son	7,787 0
A. W. Robins	8,357 0	Johnson & Co.	7,780 0
Perry & Co.	8,250 0	H. Wells & Sons	7,753 0
Kirk & Randall	8,133 0	C. Wall, Ltd.	7,598 0
Martin, Wells, & Co., Ltd.	8,000 0	A. W. Nash	7,486 0
Clar'k & Sons	7,999 0	Sands & Burley	7,428 0
G. Munday & Sons	7,996 0	S. L. Grist	7,215 0
J. MacManus	7,967 0	F. & T. Thorne	7,200 0
C. R. Price	7,950 0	J. Bontly, Waltham Abbey*	7,100 0
		Almond & Sons, Ltd.	7,045 0

[Architects' estimate, £8,243.]

WATFORD.—For the extension of the electric lighting station, for the Urban District Council. Mr. C. P. Ayres, architect, Watford :—

W. & D. Wilkins	£5,109 9 10	G. & J. Waterman	£4,244 0 0
W. Judge	4,600 0 0	C. Brightman	4,125 0 0
Parnell & Sons	4,517 0 0	Hockley & Co.	4,100 0 0
J. L. Tyler	4,400 0 0	H. Martin	4,048 0 0
G. Wiggs	4,375 0 0	H. Brown	4,035 0 0
Oak Building Co., Ltd.	4,327 10 0	H. B. Watkins	4,025 0 0
Clark Bros.	4,327 0 0	Clifford & Gough, Watford*	3,745 0 0
Goodchild & Jeffery	4,325 0 0		
W. H. Lorden & Son	4,287 0 0		

WICKLOW (Ireland).—For sewerage works, Bridge-street, Wentworth-place, and South Quay, for the Urban District Council. Mr. J. Pansing, C.E., Town Surveyor, Wicklow :—

W. Rose £670
G. Dixon, Georges-street, Kingstown, co. Dublin* 643

WINDSOR. — For alterations and additions to Clewer Mead, Windsor, for Mrs. Franklin Taylor. Messrs. Law & Allen, architects, Dacre House, Arundel-street, Strand, W.C. :—

J. Perrin	£2,100 0 0	W. Beauchamp, Englefield Green†	£1,813 9 6
E. K. Willett	1,968 0 0		
Hollis & Sons	1,925 0 0		

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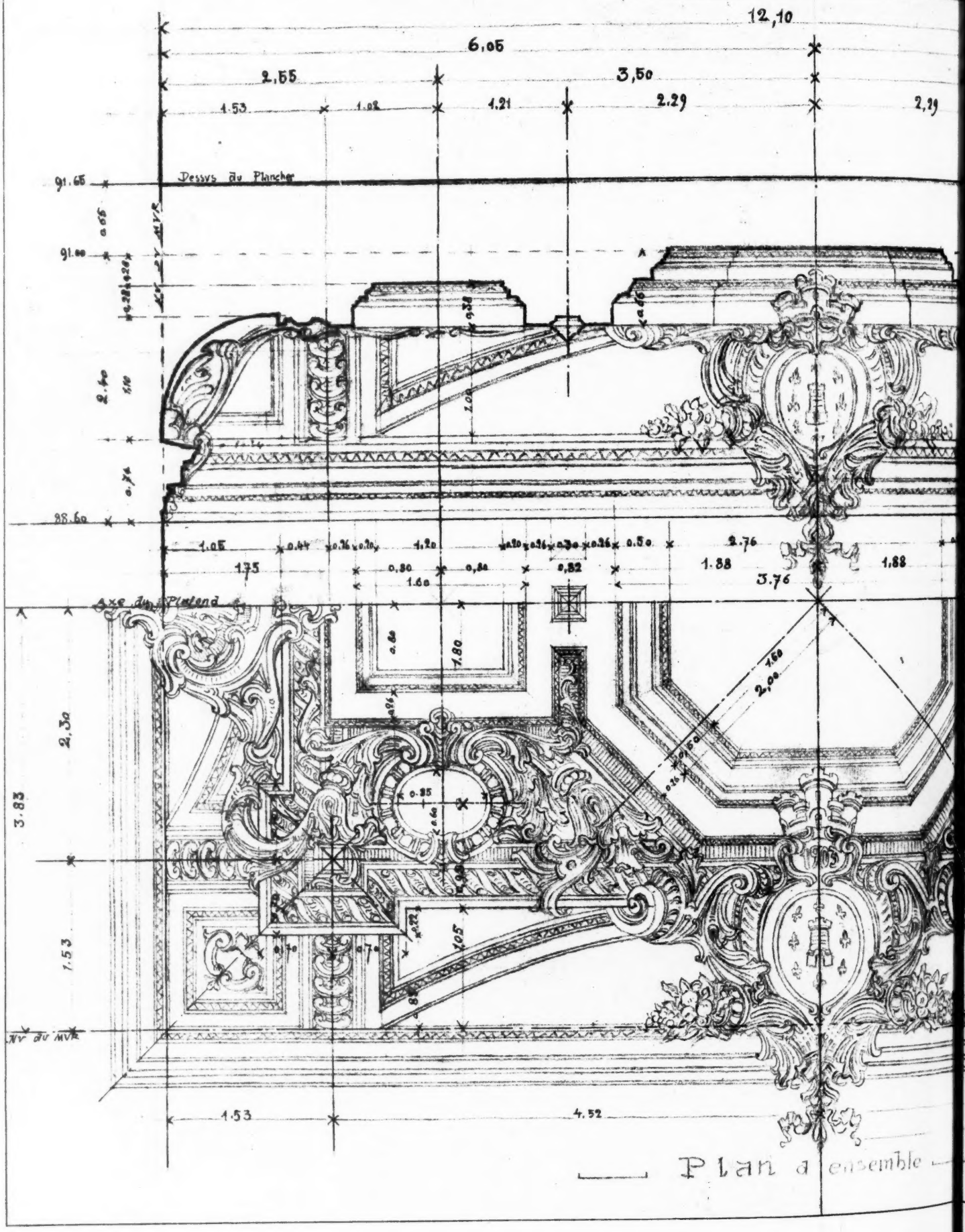

Plan d'ensemble

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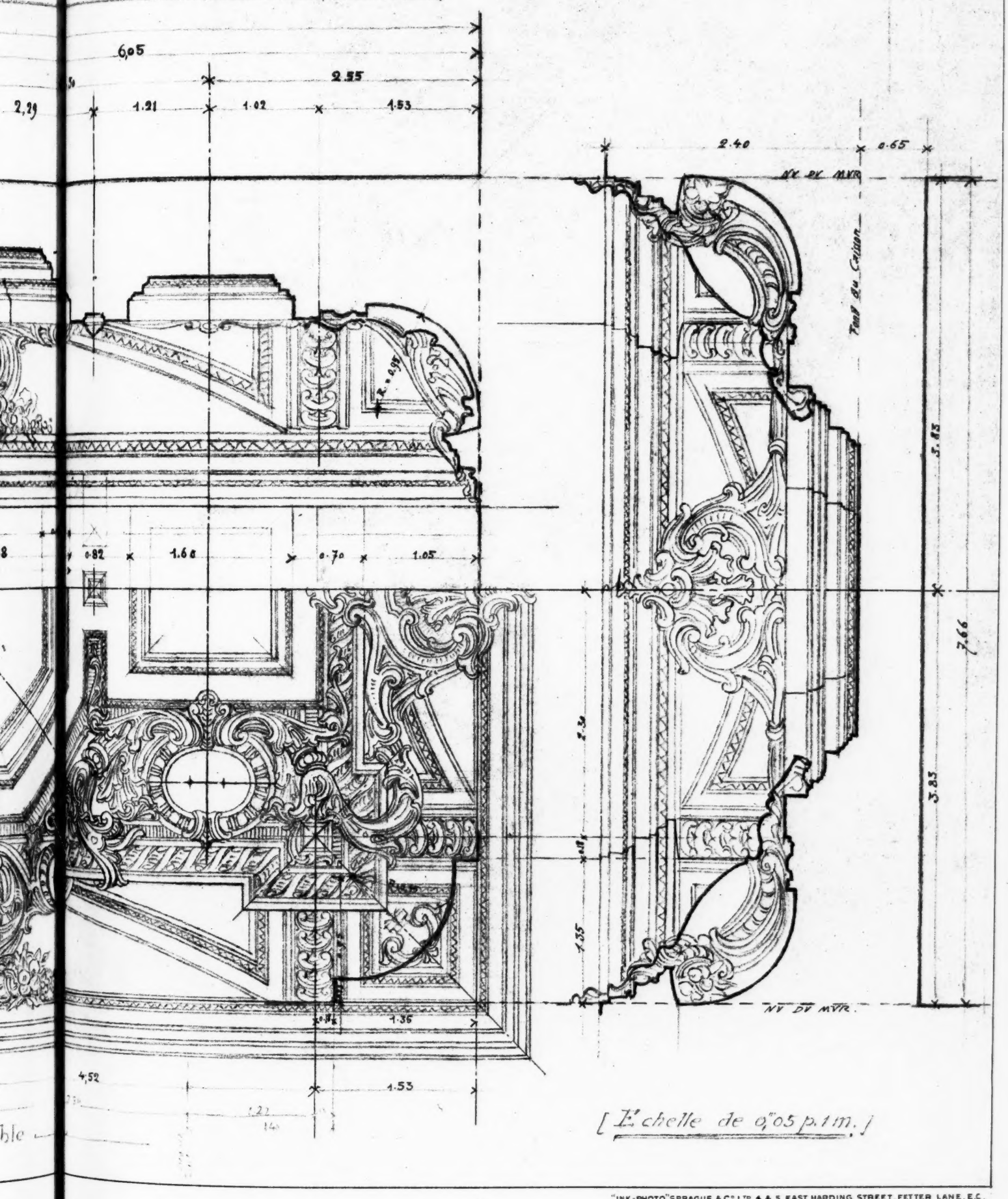

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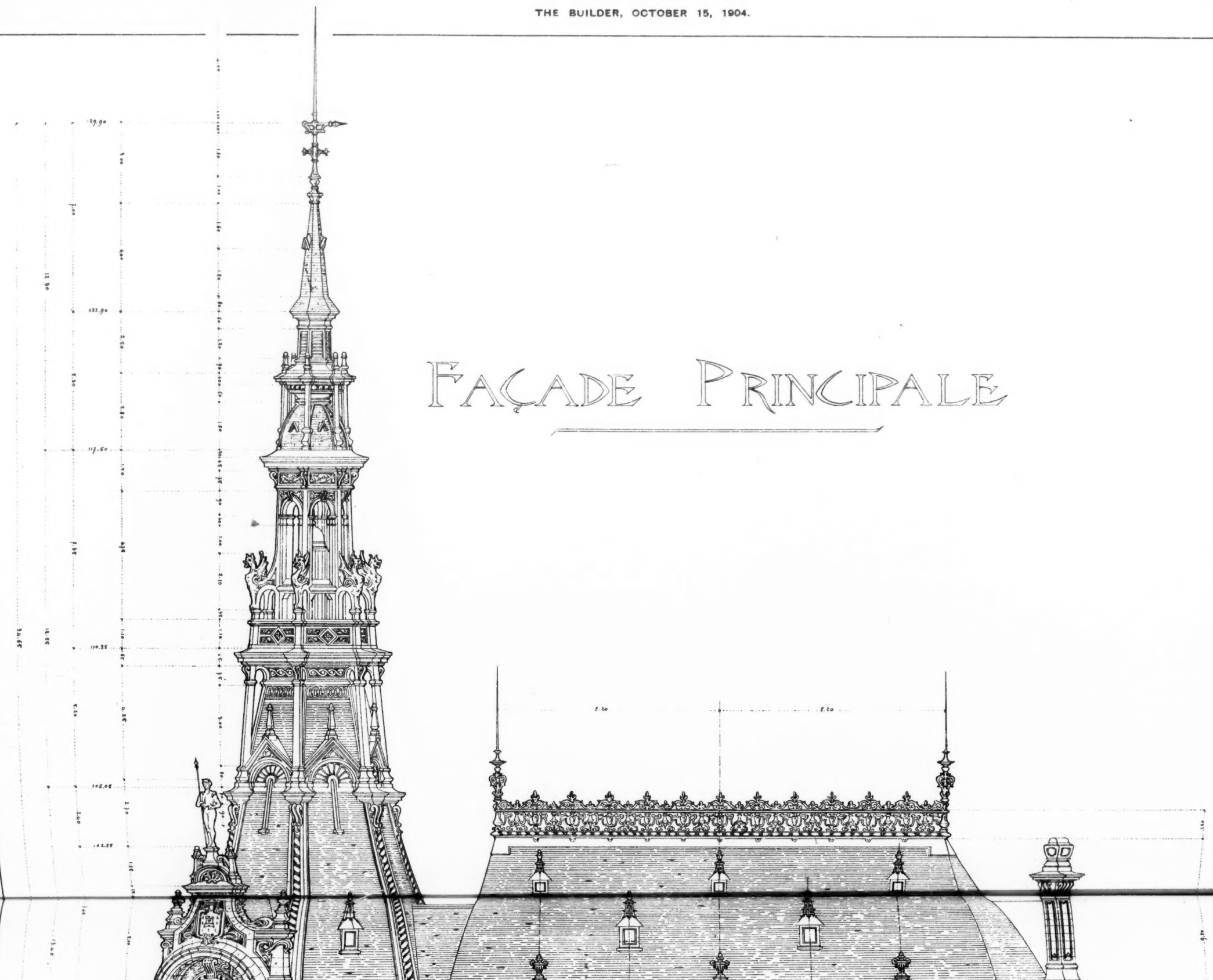

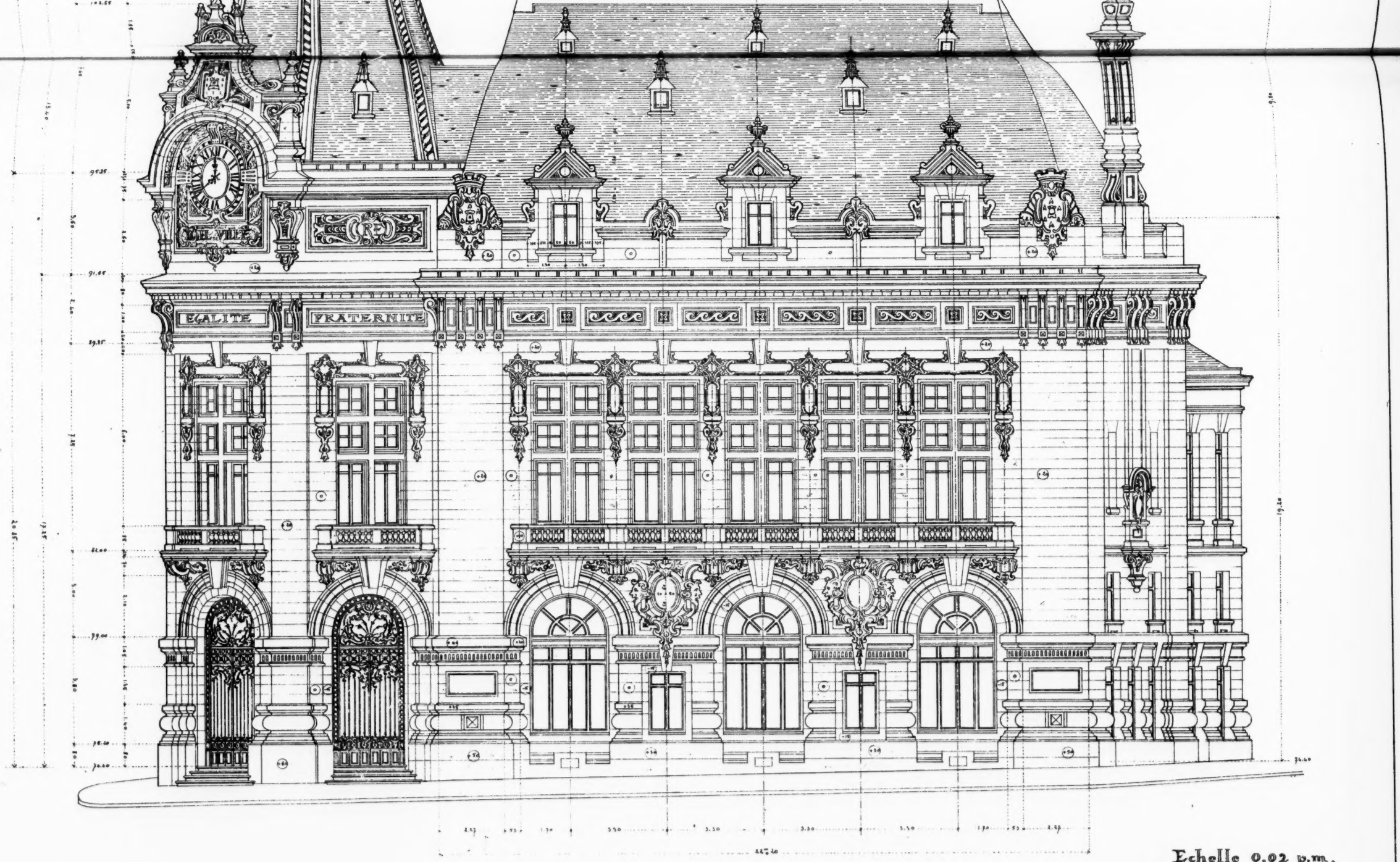

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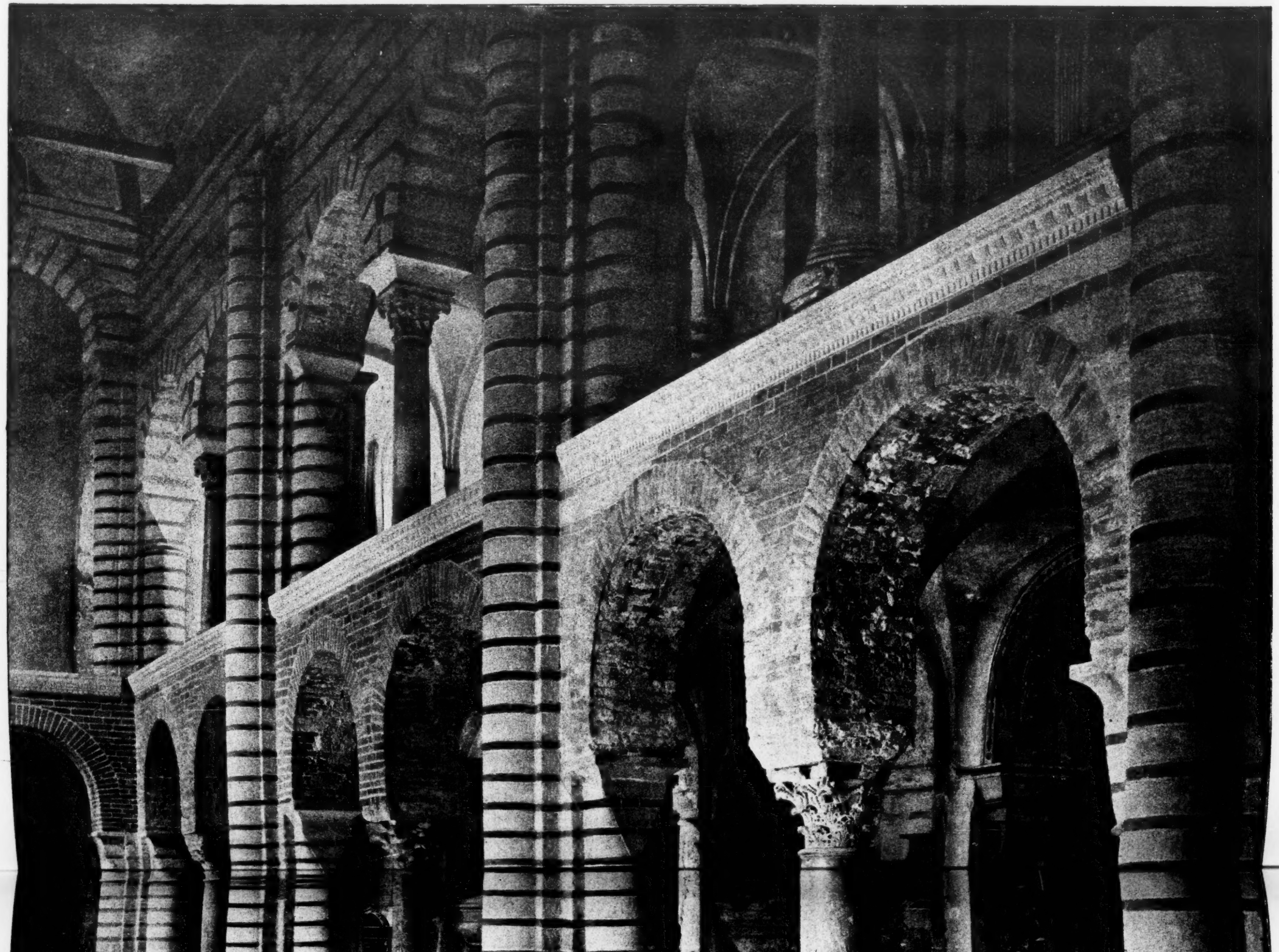

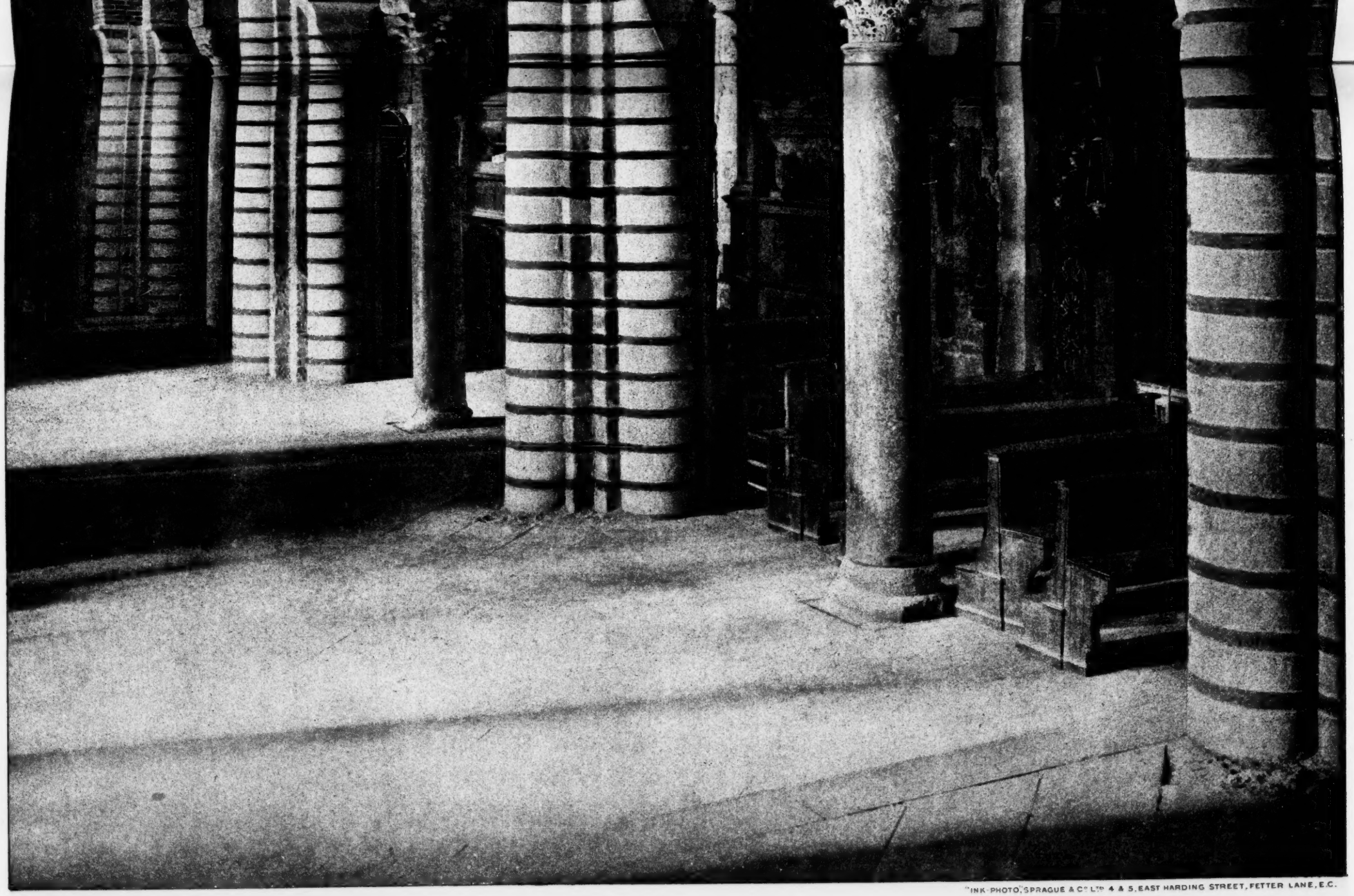

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